

Executive Summary

EXECUTIVE SUMMARY

1.0 INTRODUCTION

On September 3, 2003, BHP Billiton LNG International Inc. (BHPB, or the Applicant) submitted a Deepwater Port Act (DWPA) application to the U.S. Coast Guard (USCG) and the U.S. Maritime Administration (MARAD) and an application for a lease of State lands to the California State Lands Commission (CSLC) to own, construct, and operate Cabrillo Port LNG Deepwater Port. The proposed facilities include: a new offshore liquefied natural gas (LNG) floating storage and regasification unit (FSRU) located 12.01 nautical miles (NM) (13.83 miles or 22.25 kilometers [km]) off the coast of Ventura County and Los Angeles County, California, in Federal waters approximately 2,900 feet (884 meters [m]) deep; new offshore and onshore natural gas pipelines; and related facilities (the Project). The Applicant's projected in-service life for the FSRU is a maximum of 40 years.

This Revised Draft Environmental Impact Report (EIR) assesses the potential environmental impacts associated with construction, operation, and maintenance of the Project. This document constitutes an EIR under the provision of the California Environmental Quality Act (CEQA), California Public Resources Code § 21000 et seq. The environmental review process must be completed before the Federal and State governments can take action to consider the applications.

REASON FOR RECIRCULATION

The Cabrillo Port LNG Deepwater Port Draft Environmental Impact Statement (EIS)/EIR was published in October 2004 and circulated for public comment. Public meetings and hearings were held to receive comments on the environmental effects of the proposed Project in compliance with the National Environmental Policy Act (NEPA) and the CEQA. The Applicant and the lead agencies reviewed the comments and, based on this review, the Applicant revised key elements of the Project (see bulleted items below under "Major Changes to the Project").

The State CEQA Guidelines § 15088.5(a) states, "A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification." The State lead agency, the CSLC, has determined that the Project modifications and potential impacts thereof constitute "significant new information." However, the USCG and MARAD have determined that there is not a need to recirculate the Draft EIS under NEPA. The three agencies continue to work together closely, and upon recirculation of the Revised Draft EIR by the CSLC, they will develop a single document as the Final EIS/EIR.

The State CEQA Guidelines § 15088.5(4)(f)(1) further states, "When an EIR is substantially revised and the entire document is recirculated, the lead agency may require reviewers to submit new comments." Nonetheless, comments on the October 2004 Draft EIS/EIR were reviewed, and comments on environmental issues are

addressed within the content of this Revised Draft EIR. As discussed in Section 1.5.4, “Public Review of the Revised Draft EIR,” commenters are requested to consult Table 1.4-1 in Section 1.4, “CEQA Recirculation,” to determine where comments on the October 2004 Draft EIS/EIR are addressed in this document. Commenters are encouraged to submit new comments on the Revised Draft EIR.

This document has been prepared in accordance with NEPA and the CEQA, the Council on Environmental Quality, and the State CEQA Guidelines and all of the provisions therein. As also required by NEPA and the CEQA, this document describes the Project’s permitting and regulatory requirements, applicable regulations, and the Project’s compliance with them.

MAJOR CHANGES TO THE PROJECT

Major changes to the Project since the issuance of the October 2004 Draft EIS/EIR are summarized below and incorporated into the analysis within this document:

Project Description and Alternatives

- **FSRU Dimensions.** Due to design changes, several dimensions of the proposed FSRU are larger than previously proposed by the Applicant, including overall length (971 feet [296 m]).
- **New Offshore Pipeline Route.** The route of the offshore pipelines has been revised, following geotechnical analyses, to reduce the potential for turbidity flows to affect the pipelines.
- **Pipeline Installation at Shore Crossing.** The Applicant would use horizontal directional boring (HDB) instead of horizontal directional drilling (HDD) to install the Project pipelines beneath the shore. HDB uses a semi-closed loop system in which excess mud and cuttings are pumped back to the drill rig; lower pressures are used, and the possibility of drilling fluid release is minimized or eliminated. Vessels used during HDB operations would be anchored. Cofferdams would not be used.
- **New Onshore Pipeline Route Segment Near Center Road Station, Ventura County.** The northern portion of the proposed Center Road Pipeline route (beginning at approximately milepost (MP) 12.5 and continuing to Center Road Station) would be relocated further to the southeast and predominantly through agricultural lands to bypass Mesa Union School on Mesa School Road. The route it replaces (the proposed route in the October 2004 Draft EIS/EIR) is evaluated herein as Center Road Pipeline Alternative 3.
- **Gas Odorant Injection.** To assist in leak detection by smell, the Applicant would inject an odorant into the natural gas stream at the FSRU. Southern California Gas Company (SoCalGas) would operate a backup odorant injection system onshore.
- **Alternatives.** The lead agencies have expanded information regarding the dual mooring alternative to the FSRU technology (such as that used by Excelerate

Energy). In addition, the Applicant has added a different location for the HDB exit points for the Point Mugu and Arnold Road Shore Crossing alternatives than the one for the proposed Project. The Applicant has specified the proposed routes and metering stations for the shore crossing alternatives.

Public Safety

- **Independent Risk Assessment (IRA).** With the exception of certain information that has been determined to be security sensitive by the USCG, the revised IRA is provided as Appendix C1 and summarized in Section 4.2, "Public Safety: Hazards and Risk Analysis."
- **Sandia National Laboratories Review of IRA.** The hazards and risk analysis approach used in the IRA has been independently reviewed by the authors of the December 2004 Sandia report entitled Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water; the 2006 Sandia report on the IRA is provided as Appendix C2. The revised IRA incorporates Sandia's recommendations and follows Sandia guidance.
- **Calculation of Safety Zone.** The 1,640-foot (500 m) safety zone would extend from the circle defined by the rotation of the stern of the FSRU around the mooring point rather than from the mooring point.
- **Pipeline Safety.** SoCalGas would install additional mainline valves equipped with either remote valve controls or automatic line break controls in the Center Road Pipeline, which would limit the area affected by a potential pipeline accident.

Air Quality

- **Air Quality Assessment.** The U.S. Environmental Protection Agency has determined that the FSRU should be permitted in the same manner as sources on the Channel Islands. Accordingly, the Project would not require a Prevention of Significant Deterioration permit. In addition, air emissions from the generators aboard the FSRU have been recalculated.
- **Commitments to Achieve Air Emissions Reductions.** The Project now includes a commitment to achieve a specific quantity of nitrogen oxide emissions reductions. The Applicant would use natural gas to fuel all support vessels to reduce air emissions from offshore sources.

NEED FOR THE PROJECT

The overall Project purpose, need, and objectives are to increase the natural gas supply in California, and to increase natural gas supply reliability and diversity.

The California Energy Commission (CEC) estimates that California's demand for all uses of natural gas will grow by approximately 0.7 percent annually from 2006 to 2016, even after taking into account maximum increased conservation and the use of

renewable energy. According to the CEC's 2005 Natural Gas Assessment Update, California's total annual consumption of natural gas was 2,200 billion cubic feet in 2003; by 2013, natural gas demand in the State is projected to reach 2,400 billion cubic feet, in part as a result of the growing use of natural gas for electricity generation. The CEC has thus recommended that California secure and diversify its sources of natural gas to ensure a sufficient and reliable supply of natural gas. The CEC and the California Public Utilities Commission (CPUC), in their 2005 Energy Action Plan II: Implementation Road Map for Energy Policies, state that California must promote infrastructure enhancements and diversify supply sources to include LNG. The plan includes the following key actions: (1) develop a process to facilitate the prompt and environmentally sensitive evaluation and siting of needed LNG facilities; (2) provide that the natural gas delivery and storage system is sufficient to meet California's peak demand needs; and (3) encourage the development of additional in-state natural gas storage to enhance reliability and mitigate price volatility.

PUBLIC INVOLVEMENT

Preparation of the October 2004 Draft EIS/EIR began on February 3, 2004. A Notice of Intent/Notice of Preparation (NOI/NOP) was provided to the California State Clearinghouse for release on February 24, 2004, and was published in the Federal Register (Vol. 69, No. 39) on February 27, 2004. During the scoping period, which ended on March 31, 2004, the USCG, MARAD, and the CSLC held three open houses and three scoping meetings. All scoping meetings were held in wheelchair-accessible sites, and the NOI/NOP provided information for requesting special accommodations for the scoping meetings, such as simultaneous Spanish translation. The informal open house format allowed meeting participants to review displays, maps, and literature and to meet agency staff, members of the EIS/EIR project team, and BHPB personnel for one-on-one discussions. Repositories were provided to receive written comments. Approximately 305 persons attended the scoping meetings and open houses in Oxnard and Malibu.

In addition to comments received during these scoping meetings, the USCG and the CSLC received more than 150 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens during the scoping period. All scoping comments, resolutions, and transcripts of public meetings are available on the U.S. Department of Transportation (USDOT) docket (<http://dms.dot.gov>, docket number 16877). Transcripts are also posted on the Project public-access website <http://www.cabrilloport.ene.com>.

During the comment period following publication of the October 2004 Draft EIS/EIR, the USCG, MARAD, and the CSLC held four open houses and four public meetings. Approximately 676 persons attended the public meetings and open houses in Santa Clarita, Oxnard, and Malibu, and 195 people gave oral comments at these meetings. In addition, the USCG and CSLC received more than 524 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens with comments on the October 2004 Draft EIS/EIR. All of the comments received during the scoping process and comment period for the October 2004 Draft

EIS/EIR were reviewed by the lead agencies, and the Revised Draft EIR (this document) identifies and addresses environmental issues raised in these comments.

Several comments suggested specific mitigation measures; this document describes feasible mitigation measures to minimize significant adverse impacts. In addition, comments were received expressing either opposition or support for the Project. This document does not need to reflect those views; however, all comments received are part of the public record and will be available for review by decision-makers.

This document is filed with the California State Clearinghouse and is available at local libraries and on the CSLC website (<http://www.slc.ca.gov>). It has been mailed to Federal, State, and local agencies, elected officials, newspapers, public libraries, and other interested parties. A formal notice that the Revised Draft EIR is available for review and comment has been posted in the Ventura County and Los Angeles County Clerk offices. The public has 45 days to review and comment on the Revised Draft EIR both in the form of written comments and at public meetings held in communities near or adjacent to the Project area. Comments on this Revised Draft EIR can be submitted to the CSLC during the public review period. All comments received on the Revised Draft EIR will be addressed in the Final EIS/EIR.

2.0 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The Project would consist of three main components: the FSRU, which would be anchored and moored on the ocean floor for the life of the Project in Federal waters 12.01 NM (13.83 miles or 22.25 km) off the coast of Ventura and Los Angeles Counties, in waters approximately 2,900 feet (884 m) deep; offshore and shore crossing pipelines; and pipelines within the City of Oxnard, unincorporated areas of Ventura County, and the City of Santa Clarita in Los Angeles County, along with three expanded or modified existing onshore valve stations (see Figures ES-1 and ES-2).

The Applicant would install, own, operate, and maintain the FSRU and the offshore pipelines, from the FSRU to the Ormond Beach Metering Station. The Applicant would also fund the construction of the onshore facilities, which SoCalGas would ultimately own, operate, and maintain.

As proposed, LNG from the Pacific basin would be delivered by LNG carriers, offloaded to the FSRU, and regasified under highly instrumented and monitored/controlled conditions on the FSRU. The natural gas would be delivered to shore via two parallel 24-inch (0.6 m) diameter subsea gas transmission pipelines laid on the ocean floor about 100 feet (30.5 m) apart from one another. The total length of the pipelines from the pipeline ending manifold at the FSRU to the onshore main line valve would be approximately 22.77 miles (36.64 km). A 200-foot (61 m) wide right-of-way (ROW) would be used for construction and would be established permanently in the offshore areas in which the 24-inch (0.6 m) pipelines would be laid. These pipelines would come onshore at Ormond Beach near Oxnard in Ventura County.

The FSRU would be permanently moored to a turret system (a tower-like revolving structure) that would allow it to rotate (weathervane) around a fixed point. The FSRU, which would be designed for loading LNG from a side-by-side, moored LNG tanker, would be vessel-shaped, double-sided, double-bottomed, and 971 feet (296 m) long and 213 feet (65 m) wide, with a water displacement of approximately 190,000 deadweight tons (193,050 metric tons).

Ships would be berthed and unloaded on the starboard (right) side of the FSRU. The FSRU would store the offloaded LNG in three Moss spherical tanks. Onboard utilities and systems associated with FSRU operations would include electric power generation and distribution, instrumentation and controls, and fire and safety systems. Cabrillo Port would include all marine systems, communications, navigation aids, and equipment necessary to safely conduct LNG carrier operations and receive product.

The subsea pipelines would come ashore and extend beneath the beach for a distance of 0.65 mile (1.1 km) and terminate at a new metering station on the existing Reliant Energy Ormond Beach Generating Station to tie into the SoCalGas natural gas pipeline system. HDB technology would be used to place the pipelines at least 50 feet (15.2 m) below the surface of the beach and the adjacent sea level except at both ends of the crossing where the pipelines slope up to meet the entry and exit points. Each of the two HDB shore approaches for the Project is expected to be approximately 4,265 feet (1,300 m) in length and would be parallel to each other, with approximately 100 feet (30.5 m) of separation.

Two new onshore pipelines—the Center Road Pipeline in Oxnard and Ventura County and the Line 225 Loop Pipeline in Santa Clarita in Los Angeles County—would be constructed to connect the offshore pipeline with the existing SoCalGas intrastate pipeline system to distribute the natural gas to customers throughout the Southern California region. The onshore Center Road Pipeline and Line 225 Loop Pipeline, along with associated facilities, such as a metering station for the Center Road Pipeline, a backup odorant injection system, and block valves on both pipelines, would be installed where existing pipelines are not large enough to accommodate the proposed additional supply. The Center Road Pipeline would consist of approximately 14.7 miles (23.7 km) of new 36-inch (0.9 m) diameter pipeline. The Line 225 Loop Pipeline would consist of approximately 7.7 miles (12.4 km) of new 30-inch (0.76 m) diameter pipeline, generally paralleling the existing Line 225 Pipeline. The pipelines would be constructed, owned, and operated by SoCalGas.

3.0 PROJECT ALTERNATIVES

This document presents a reasonable range of alternatives in accordance with NEPA and the CEQA. Figure ES-3 presents the proposed Project and its alternatives.

1 Insert (1 of 2)

Figure ES-1 Consequence Distances Surrounding the FSRU Location for Worst Credible Events

2 [same as Figure 2.1-2]

Insert (2 of 2)

Figure ES-1

Insert (1 of 2)

Figure ES-2 Proposed Project Components

1 [same as Figure 2.1-1]

Insert (2 of 2)

Figure ES-2

1 Insert (1 of 2)

Figure ES-3 Location of Proposed Project and its Alternatives
[same as Figure 3.3-1]

Insert (2 of 2)

Figure ES-3

For this Project, alternatives were retained for evaluation if they would feasibly attain most of the basic objectives of the proposed Project but would avoid or substantially lessen any of the significant effects of the proposed Project.

NO ACTION/NO PROJECT ALTERNATIVE

Under the No Action Alternative, MARAD would deny the license for the Cabrillo Port Project and/or the CSLC would deny the application for the proposed lease of State tide and submerged lands for a pipeline ROW. The No Action Alternative means that the Project would not go forward and the FSRU, associated subsea pipelines, and onshore pipelines and related facilities would not be installed. Accordingly, none of the potential environmental impacts identified for the construction and operation of the proposed Project would occur. Since the proposed Project is privately funded, it is unknown whether the Applicant would fund another energy project in California...

ALTERNATIVE DEEPWATER PORT, SUBSEA PIPELINE, SHORE CROSSING, AND ONSHORE PIPELINE LOCATION – SANTA BARBARA CHANNEL/MANDALAY SHORE CROSSING/GONZALES ROAD PIPELINE ALTERNATIVE

One alternative considered was an alternative deepwater port location and the subsea pipeline, shore crossing, and onshore pipeline required to serve a deepwater port at that location. Under this alternative, the FSRU would be moored in the Santa Barbara Channel, the shore crossing would be at Mandalay Beach, and the onshore pipeline would follow Gonzales Road to Rose Road to Los Angeles Road to Santa Clara Road to La Vista Avenue to the Center Road Valve Station.

ALTERNATIVE SHORE CROSSINGS

Two alternative shore crossings were evaluated (in addition to the Mandalay shore crossing that is part of the Santa Barbara Channel alternative). These alternative routes would have different HDB entry and exit points than the one for the proposed Project and would connect to the SoCalGas pipeline ROW at different locations—at Arnold Road, and at the Naval Base Ventura County Point Mugu. Both shore crossing alternatives would require the construction of new metering stations.

ONSHORE PIPELINE ROUTE ALTERNATIVES

Alternative routes between the Reliant Energy Ormond Beach Generating Station shore crossing and the Center Road Valve Station are identified in this document as Center Road Alternatives 1, 2, and 3. Center Road Pipeline Alternative 1 has been retained because it was the proposed route in the Applicant's original application for the Project. It traverses densely populated areas of Oxnard and would use existing utility ROWs. Center Road Pipeline Alternative 2 avoids most of the population centers in Oxnard and Ventura County and would traverse mostly agricultural areas. Center Road Pipeline Alternative 3 differs from the proposed route only in the northernmost 2.1 miles (3.4 km) of the route. Center Road Pipeline Alternative 3 was the proposed Center Road Pipeline route of the October 2004 Draft EIS/EIR; the proposed route of the Center

Road Pipeline in this document is farther away from Mesa Union School than the Center Road Pipeline Alternative 3.

The Line 225 Pipeline Loop Alternative route is similar to the proposed Project but has an alternative stream crossing. This alternative route would be shorter and would traverse less dense housing and more open space.

4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This document analyzes the environmental issues associated with the construction, operation, maintenance, and to a lesser extent decommissioning of the proposed Project. Decommissioning would be analyzed in a subsequent environmental review at the end of the Project life. The impact analysis uses information provided by the Applicant in the initial applications and in response to subsequent data requests; field investigations and surveys; public scoping; literature research; alternative analyses; contacts with Federal, State, and local agencies; and other information from public groups and organizations.

In addition to an Operations Manual and Security Plan for the FSRU and pipelines, the Applicant has prepared or would prepare and implement specific plans that include measures to avoid or mitigate potential impacts. These plans include, among others, a Spill Prevention, Control, and Countermeasures Plan; a Construction Fugitive Dust Plan; a Storm Water Pollution Prevention Plan (SWPPP); an Erosion Control Plan; a Weed Management Plan; and a Biological Resources Mitigation and Monitoring Plan.

Specific mitigation measures that are feasible were identified as part of the environmental analysis. When implemented, these measures would reduce potential adverse impacts of Project construction and operation to a level of below the significance criteria. Table ES-5 at the end of the Executive Summary lists the anticipated impacts of the Project and measures that would be implemented to mitigate those impacts. Measures that the Applicant has incorporated into the Project to reduce impacts that go beyond regulatory requirements are termed Applicant measures and are denoted as **AM**. Agency-proposed mitigation measures are denoted as **MM**. A Mitigation Monitoring Program is provided in Chapter 6 of this document.

The environmental effects of constructing and operating the Project as proposed are summarized below.

4.1 OCEANOGRAPHY AND METEOROLOGY

The Applicant must design the FSRU and its mooring system to withstand a 100-year wave event. A 100-year wave event represents an event that has the probability of occurring once every 100 years.

The Cabrillo Port area is sheltered from waves from the northwest by Point Conception and the Channel Islands. In addition, the area is partially sheltered from some south swell directions by the Santa Catalina, San Clemente, and Santa Barbara Islands. As a result, the average wave height in the proposed Cabrillo Port area is considerably lower

than that seaward of the Channel Islands, but the directional wave spectra (distribution of wave energy with wave direction) at the site is much more complex than that in the open ocean.

Circulation in the Southern California Bight is complex. Regionally, two currents dominate circulation in the Southern California Bight: the California Current flows toward the equator and the Southern California Countercurrent flows towards the North Pole. The proposed Cabrillo Port site is at the inshore side of the Southern California Bight, where the mean circulation is counterclockwise. A northward countercurrent exists near the proposed site. This countercurrent is strongest in summer and early fall and weak or even nonexistent in spring. The southward California Current flows approximately 50 NM to 80 NM (60 to 90 statute miles or 100 to 150 km) offshore and therefore does not influence the Project site. Currents near the proposed site are typically northward in summer, fall, and winter.

The climate of the Northern Channel Islands is characterized by mild winters and dry summers and is dominated by a strong and persistent high-pressure system known as the Pacific High, which influences the presence of temperature inversions. The coast has early morning southeast winds (offshore), which shift to the northwest as the day progresses. In late spring and early summer, the northwest winds transport cool, humid marine air onshore, causing frequent fog and low clouds on the coast at night and in the morning. Sea breezes are generally from the west, west-northwest, and northwest, and occur about 44 percent of the time throughout the year. At one buoy location near the proposed site, the maximum average wind speed was 43.1 mph (19.3 meters per second [m/s]), and the maximum peak wind gust was 55 mph (24.6 m/s). The maximum hourly peak gust was 55.1 mph (24.6 m/s).

In general, for objects greater than 10 miles (16 km) away, the greatest visibility (the least fog layer or haze, highlighted in light gray in the table) occurs in winter and diminishes from spring through summer.

4.2 PUBLIC SAFETY

Public safety issues associated with the transport of LNG in carriers, storage and offshore handling of LNG at the FSRU, and offshore and onshore pipeline transport of odorized natural gas after it has been regasified aboard the FSRU were evaluated. The effects analyzed include serious injury or fatality, and long-term damage to the environment.

At the beginning of the NEPA/CEQA process, the lead agencies determined that an IRA would be required to address public questions about the safety of the proposed Project. They retained a team of independent experts to prepare a site-specific evaluation of the design concept and security plans for Cabrillo Port, taking into consideration local environmental conditions and the concerns expressed by the public during scoping. Subsequently, in December 2004, after publication of the October 2004 Draft EIS/EIR, Sandia National Laboratories (Sandia) issued its guidance report (Sandia 2004). The

1 guidance report lays out a recommended framework for analyses of large LNG spills
2 onto water.

3 The USCG commissioned the authors of the Sandia guidance report to conduct a third-
4 party technical review of the IRA that was prepared for the proposed Project in 2004.
5 Sandia reviewed the methodology used in the 2004 IRA and made recommendations
6 for revised modeling and analysis in its 2006 report (Appendix C2 of this document).
7 Sandia also participated in defining the credible intentional scenarios for assessment.
8 The 2006 IRA (Appendix C1 of this document) incorporates Sandia's recommendations,
9 and the conclusions and recommendations of the 2006 IRA are the result of
10 collaboration and concurrence between Sandia and the IRA authors. The public safety
11 analysis of the FSRU in Section 4.2 is based on the 2006 IRA and on the Sandia
12 guidance.

13 The IRA defines and evaluates representative worst credible cases (scenarios of events
14 that would lead to the most serious potential impacts to public safety). These included
15 accidents that would affect one, two, or all three tanks of the FSRU. However, Sandia
16 found that a three-tank simultaneous release (a massive LNG release in a short time
17 period) was not credible.

18 The IRA uses the types of computer models and assumptions that were reviewed by
19 Sandia to determine the potential consequences associated with the proposed LNG
20 deepwater port; the IRA modeling provides the basis for the impact analysis. The IRA
21 concludes that, given the many safety features that have been incorporated in the
22 design of the proposed Project, accidents at the FSRU would be rare and would not
23 reach shore, even in the case of a worst credible release such as a deliberate attack,
24 although recreational boaters and fishermen within the defined impact area and
25 commercial ships within the Traffic Separation Scheme could be affected. The IRA also
26 recommends that additional safety analyses be conducted and the results incorporated
27 into the final design and operations of the proposed Project.

28 Public safety impacts include the potential release of LNG due to an operational incident
29 or natural cause at the FSRU or an LNG carrier. Sandia concurred that such incidents
30 would not be expected to affect more than a single LNG tank, and the consequences of
31 such an LNG release would not affect the general public. A high-energy collision of
32 another vessel with the FSRU or an LNG carrier or an intentional attack could cause a
33 rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable
34 vapor cloud that could extend beyond the 1,640-foot (500 m) radius safety zone around
35 the FSRU, impact any members of the boating public in the identified potential impact
36 area, and impact boats traveling in the Traffic Separation Scheme. This impact would
37 remain significant after mitigation.

Table ES-1 presents the IRA's summary of FSRU accident consequences. Figure ES-1 identifies the areas that would be affected by the consequences of potential worst credible accidental and intentional events at the FSRU. As shown, the impact distances from accidental releases and intentional events are much less than the distance to shore, and the only members of the public expected to be at risk on a predictable basis are in the designated area of impact and in the coastal shipping lanes. The coastwise shipping lane is approximately 2.06 NM (2.4 miles or 3.8 km) away.

The greatest distance for public impacts calculated in the IRA is 6.31 NM (7.27 miles or 11.7 km) for an intentional threat – two-tank simultaneous release. This hazard distance would encompass the shipping lane but would extend no closer than 5.7 NM (6.6 miles or 10.6 km) from the nearest mainland landfall. The hazard to the shipping lane would occur about 30 minutes after the initiating event, which could allow for notification and response. The exposure time within the shipping lane would be for about another 30 minutes until the vapor cloud dispersion would fall below the lower flammability limit. An average of three vessels would be exposed to this vapor cloud hazard based on marine traffic frequency estimates. The IRA did not estimate frequencies of intentional acts, due to great uncertainties in such estimates.

Pool fire hazards would not reach the coastwise shipping lane and would not be the most significant hazard. For pool fire scenarios, the greatest distance heat of an intensity to cause injury to people would result from an escalation case in which an incident in one tank escalates to cause all three LNG cargo tanks to fail. In this scenario, the injury level threshold would be reached 1.7 NM (2 miles or 3.2 km) from the release point. Although considered a credible intentional or accidental event, more likely scenarios would lead to smaller pool fire hazards.

The IRA states that the Moss tank design demonstrates a very robust design against marine collisions. Only vessels with very specific geometry, strength, and speed have the physical capacity to penetrate the hull's structural steel and breach the cargo containment. The IRA concludes that accidental marine collisions are improbable.

The IRA evaluated the potential consequences of an accident based on the total volume of LNG that would be stored on the FSRU or in an LNG carrier while berthed at the FSRU during unloading. The amount of LNG that would be released would never exceed the total storage capacity of the FSRU because prior to the arrival of LNG carriers delivering LNG to the FSRU, the FSRU would regasify enough LNG and send it to shore via the offshore pipelines to make room for the new delivery. The LNG carriers would use routes that are farther from shore than the FSRU and therefore farther away than the FSRU from most recreational boating and fishing areas and the vessel traffic lanes. As such, LNG carriers would not present risks or hazards to the general public while in transit to the FSRU. Since the objective of the IRA was to evaluate risks to the public, it did not consider the potential effects of an accident at an LNG carrier during transit to the FSRU.

Table ES-1 Summary of FSRU Accident Consequences

	Marine Collision ^b	Intentional ^b	Escalation ^{c,d}	
Breach size	1300 m ² of area	7m ² & 7m ²	7m ² & 1300 m ²	7m ² & 2x1300 m ²
Number of tanks	50% volume of 1 tank	2	2	3
Release quantity (gal / m ³) ^e	13,000,000 / 50,000	53,000,000 / 200,000	40,000,000 / 150,000	53,000,000 / 200,000
	Pool Spread Distance			
Distance down range (NM / miles / m)	0.40 / 0.45 / 730	0.35 / 0.40 / 650	0.33 / 0.38 / 610	0.43 / 0.50 / 800
	Pool Fire			
Radiative flux distance > 5 kW/m ² (NM / miles / m)	1.60 / 1.85 / 2,970	1.42 / 1.64 / 2,640	1.35 / 1.56 / 2,510	1.74 / 2.01 / 3,230
Radiative flux distance > 12.5kW/m ² (NM / miles / m)	0.99 / 1.14 / 1,830	0.87 / 1.01 / 1,620	0.83 / 0.96 / 1,540	1.07 / 1.24 / 1,990
Radiative flux distance > 37.5kW/m ² (NM / miles / m)	0.49 / 0.57 / 910	0.44 / 0.50 / 810	0.42 / 0.48 / 770	0.54 / 0.62 / 1,000
	Vapor Cloud Dispersion (No Ignition)		Immediate Ignition No Vapor Cloud Hazard	
Average flammable height (feet / m)	69.9 / 21	98 / 30		
Maximum distance to LFL (NM / miles / m)	2.85 / 3.29 / 5,290	6.03 / 6.95 / 11,175		
Time for maximum distance (min) ^a	50	89		
	Vapor Cloud (Flash) Fire			
Radiative flux distance > 5 kW/m ² (NM / miles / m) ^f	3.57 / 4.11 / 6,610	6.31 / 7.27 / 11,700		
Radiative flux distance > 12.5kW/m ² (NM / miles / m) ^f	3.29 / 3.79 / 6,100	6.21 / 7.15 / 11,500		
Radiative flux distance > 37.5kW/m ² (NM / miles / m) ^f	3.06 / 3.52 / 5,670	6.12 / 7.05 / 11,340		

Source: Riskology 2006, Table 3.8 (see Appendix C1).

Notes:

Pool fires and vapor cloud fires are mutually exclusive.

All radiative flux distances given from release location.

LFL = lower flammability limit; NM = nautical miles; m = meters.

Wind speed = 2 meters per second; temperature = 21 °C.

^aTime includes liquid dispersion and evaporation.

^bMass balance flux rate = 0.282 kg/m² sec.

^cMass balance flux rate = 0.135 kg/m² sec.

^dThe escalation case was modeled as a pool fire resulting from a breach of secondary containment due to the effects of a fire. Since ignition is guaranteed, no dispersion cloud develops.

^eTank volume of 100,000 m³ is used for ease of calculations; actual tank volume is 90,800 m³.

^f See Section 4.2.7.2 for definitions of radiative flux levels.

Both LNG and natural gas are highly regulated, and numerous State and Federal agencies would be responsible for reviewing the safety of the design and ensuring the safe operation of the FSRU and pipelines. Table ES-2 shows the major regulatory requirements and design standards that would apply to LNG carriers and the FSRU (also see Appendix C3). The impact analysis presumes that the plans, procedures, and design requirements specified would be implemented. In the 40 years that the LNG industry has been operating, fewer than 20 marine accidents involving LNG have occurred worldwide, none of which resulted in a significant release of LNG (see Chronological List of LNG Accidents in Appendix C3). The USCG would respond to emergencies at the FSRU or an LNG carrier.

Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriers^a

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
International	
International Safety Management Code	<ul style="list-style-type: none"> • Applicable to LNG carriers. • Section 1.2.2.2 establishes safeguards against all identified risks. • Section 1.4.5 identifies procedures to prepare for and respond to emergency situations.
Federal^b	
Deepwater Port Act (DWPA), as amended, 33 U.S.C. § 1501 et seq. - USCG	<ul style="list-style-type: none"> • Establishes the regulatory regime for the location, ownership, construction, and operation of deepwater ports beyond the State's seaward boundary.
33 Code of Federal Regulations (CFR) Part 96, Rules for the Safe Operation of Vessels and Safety Management Systems - USCG	<ul style="list-style-type: none"> • Applicable to LNG carriers. • 33 CFR § 96.240(e) states that the functional requirements of a safety management system must include procedures to prepare for and respond to emergency situations by shore side and shipboard personnel. • 33 CFR § 96.250(h) states that emergency preparedness procedures must (1) Identify, describe and direct response to potential emergency shipboard situations; (2) Set up programs for drills and exercises to prepare for emergency actions; and (3) Make sure that the company's organization can respond at anytime, to hazards, accidents and emergency situations involving their vessel(s).
33 CFR Parts 104-105 - USCG	<ul style="list-style-type: none"> • Requires vessel owners or operators to develop and submit a vessel security plan to the USCG. The format and requirements for the plan are specified in the regulations. • Requires the owner or operator of facilities that receive more than 150 passengers or more than 100 gross tons of cargo that supports the production, exploration, or development of oil and natural gas to adhere to facility security requirements specified in these regulations; conduct a facility security assessment; and develop and implement a facility security plan.
33 CFR Part 150 - USCG	<ul style="list-style-type: none"> • Describes requirements for deepwater port operations. • Subpart A: describes requirements for operations manuals, facility spill response plans.

Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriers^a

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
	<ul style="list-style-type: none"> • Subpart B: describes requirements for inspections and notifications upon receipt of classification society certifications. • Subpart C: describes port personnel qualifications and training. • Subpart D: describes requirements for radar surveillance, tanker advisories, vessel operation within the safety zone, emergency actions. • Subpart E: describes requirements for cargo transfer operations.
	<ul style="list-style-type: none"> • Subpart F: describes inspection, maintenance, and repair requirements for emergency equipment. • Subpart G: specifies workplace safety and health requirements. • Subpart H: specifies requirements for lights and sound signals as aids to navigation. • Subpart I: specifies requirements for reporting casualties, problems with navigation aids, pollution incidents, sabotage or subversive activity, and recordkeeping. • Subpart J: describes how Safety Zones, No Anchoring Areas, and Areas to be Avoided are defined and how notice may be provided to mariners.
33 CFR Part 148, Subparts A and G - USCG	<ul style="list-style-type: none"> • Prescribes requirements for activities involved in site evaluation and pre-construction testing at potential locations that may pose a threat to human health or welfare. • Defines how the DWPA interacts with other Federal and State laws; requires construction plan to incorporate best available technology and industry practices. Defines general design, construction, and operational criteria for deepwater ports.
33 CFR Part 149, Subparts A, B, D, E, and F - USCG	<ul style="list-style-type: none"> • Describes the process for submitting alterations and modifications affecting the design and construction of a deepwater port. • Defines pollution prevention requirements for discharge containment, valves, monitoring and alarm systems, and communications equipment. • Defines minimum requirements for firefighting equipment, detection, and alarm systems. • Prescribes requirements for lighting, marking, and sound signal aids to navigation. • Prescribes requirements for construction and design standards and specifications for safety-related equipment and systems.
46 CFR Part 38 - USCG	<ul style="list-style-type: none"> • Specifies design and construction requirements for the transportation of liquefied or compressed gases whose primary hazard is one of flammability.
46 CFR Part 153 - USCG	<ul style="list-style-type: none"> • Specifies the design and construction requirements for ships transporting and storing bulk liquid, liquefied gas, or compressed gas hazardous materials.
Federal Coastal Zone Management Act Section 307(c)(3)(A) - California Coastal Commission (CCC)	<ul style="list-style-type: none"> • Requires protection against the spillage of crude oil, gas, petroleum, products, or hazardous substances in relation to any development or transportation of such materials. • Requires provision of effective containment and cleanup facilities and procedures for accidental spills that do occur.

Table ES-2 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding the FSRU and LNG Carriers^a

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
State	
- CSLC	<ul style="list-style-type: none"> Provides technical assistance to the USCG in developing design criteria and standards for the FSRU and LNG carriers.

Notes:

^aThis table is included here because of the overriding public concern regarding safety. A similar table of regulations is presented for each environmental resource discussed in Chapter 4.

^bThe US EPA has determined that Clean Air Act (CAA) Section 112(r), Risk Management Program 40 CFR Part 68 is not applicable.

Public safety impacts include the potential release of LNG due to an operational incident or natural cause at the FSRU or an LNG carrier. Sandia concurred that such incidents would not be expected to affect more than a single LNG tank, and the consequences of such an LNG release would not affect the general public. A high-energy collision of another vessel with the FSRU or an LNG carrier or an intentional attack could cause a rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable vapor cloud that could extend beyond the 1,640-foot (500 m) radius safety zone around the FSRU, impact any members of the boating public in the identified potential impact area, and impact boats traveling in the Traffic Separation Scheme. This impact would remain significant after mitigation.

To reduce the likelihood and severity of a potential release, the Applicant would design, test, and operate the FSRU in accordance with applicable rules and regulations. These ensure that the Applicant would implement a specific, tested project design and execution process that is based on site-specific information, emphasizes safety, uses analytical tools to identify and quantify potential hazards so that they may be addressed, confirms the design in a model test basin, uses third parties for verification, and conducts a pre-startup review. Other offshore public safety measures include facility management certification to meet international safety standards, inspections and surveys by classification societies, and various marine traffic measures.

Potential public safety impacts associated with natural gas transportation by pipeline have been extensively evaluated in the past, based on decades of operational history for hundreds of thousands of miles of transmission pipelines. For this reason, the likelihood of an accident can be calculated, and the IRA did not analyze pipeline accidents.

Subsea pipelines could potentially be damaged due to fishing gear being hung up on the pipelines, or a seismic event such as a subsea landslide. Mitigation measures that would increase the overall integrity of the offshore pipelines include meeting stringent pipeline design criteria for severe seismic events, procedures to identify any problem with subsea pipeline integrity, identification of areas where the new transmission pipelines may be subject to accelerated corrosion, and implementation of a cathodic protection system.

1 Onshore pipeline accidents do occur, but rarely, and safeguards beyond those required
2 by existing regulations, identified in Table ES-3, have been incorporated in the
3 proposed Project to further reduce such risks. The Applicant or its designated
4 representative would be responsible for security and monitoring measures for onshore
5 pipelines and facilities, as well as for the FSRU and offshore pipelines. Local fire and
6 police and the California Highway Patrol currently provide emergency response for
7 incidents involving existing onshore natural gas pipelines and other facilities in the area
8 handling flammable gases or liquids; response parties would not change for the
9 proposed onshore facilities.

10 Implementation of a pipeline integrity management program prior to Project operation
11 would increase public awareness and ensure that up-to-date information regarding
12 sensitive land uses would be maintained during the proposed Project. Additional
13 mitigation measures that would improve the safety of onshore pipelines include the
14 installation of additional mainline valves equipped with either remote valve controls or
15 automatic line break controls, which would limit the affected area from a potential
16 pipeline accident by allowing SoCalGas to automatically control the influx of gas into
17 sections of the pipeline system.

18 Pipeline safety regulations identify specific locales and areas where a release could
19 have the most significant adverse consequences as High Consequence Area (HCAs).
20 The Applicant would be required to treat the shore crossing as an HCA to improve the
21 integrity of the pipeline at beach recreation areas. In addition, automatic monitoring for
22 flammable gas would be required at the shore crossing HCA, which would improve the
23 safety of the system by automatically monitoring for gas leaks; emergency
24 communications and warnings would be instituted, which would improve the timeliness
25 and effectiveness of emergency response measures in the unlikely event of a potential
26 pipeline accident; and areas subject to accelerated corrosion would be identified, and a
27 cathodic protection system would be implemented, which would increase the overall
28 integrity of the pipelines, thereby reducing the potential for accidents.

29 A pipeline accident in an area of less robust housing, the manufactured home and
30 mobile home parks located on Pidduck and Dufau Roads around MP 4.1, could result in
31 a greater likelihood of injury, fatality, and property than other housing areas. To reduce
32 the likelihood and impacts of a potential pipeline accident in this area, the Applicant
33 would be required to treat this area as an HCA.

Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines^a

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
Federal	
<p>49 Code of Federal Regulations (CFR) Parts 173 and 177 - U.S. Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration Office of Pipeline Safety (PHMSA OPS)</p>	<ul style="list-style-type: none"> Regulates transportation of hazardous materials in portable tanks and by highway. Specifies minimum requirements for portable tanks and cargo tank motor vehicles. Specifies requirements for driver training, inspections, shipping papers, segregation of hazardous materials, Requires engine shutoff and bonding and grounding between containers to prevent accidental ignition due to static electricity for Class 3 materials (flammable and combustible liquids).
<p>Pipeline Safety Act of 1994 49 U.S.C. § 60101 et seq. - PHMSA OPS</p>	<ul style="list-style-type: none"> Defines the framework for pipeline safety regulation in the U.S.
<p>Pipeline Safety Improvement Act of 2002, P.L. 107-355, 49 U.S.C. § 60101 et seq. - PHMSA OPS, California State Lands Commission (CSLC), California Public Utilities Commission (CPUC)^b</p>	<ul style="list-style-type: none"> Tightens Federal inspection and safety requirements to include mandatory inspections of oil and natural gas pipelines with a history of safety problems within the next five years, with all pipelines to be inspected within ten years. All pipelines will then be inspected at seven-year intervals. States that PHMSA OPS can order corrective actions, including physical inspection, testing, repair or replacement. Requires development and implementation of pipeline integrity management programs by pipeline operators, including identifying areas where risks may be greater due to the population density (High Consequence Areas) and implementing a series of actions to mitigate the potential hazards in these areas. Emphasizes the one-call notification system and encourages pipeline operators to voluntarily adopt and implement best practices for notification of leaks and ruptures. Requires the establishment of public education programs by pipeline operators to provide municipalities, schools, and other entities with information to prevent pipeline damage and to prepare for any pipeline emergencies, including the one-call notification system, possible hazards from accidental releases from a pipeline, and actions to take in the event of a release. Defines coordinated environmental review and permitting process to expedite conducting any necessary pipeline repairs. Assesses maximum civil penalties against pipeline operators for violations of pipeline safety standards have increased. Significantly strengthens the enforcement of pipeline safety laws and includes specific whistleblower protections for employees who provide information to the Federal government about pipeline safety.

Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines^a

Law/Regulation/Plan/ Agency	Key Elements and Thresholds; Applicable Permits
	<ul style="list-style-type: none"> • Mandates continued Federal pipeline safety research and development by the National Institute of Standards and Technology, USDOT, and Department of Energy.
49 CFR Part 190 - PHMSA OPS	<ul style="list-style-type: none"> • Describes availability of informal guidance and interpretive assistance for pipeline safety programs and procedures and establishes framework for inspections and for safety enforcement actions.
49 CFR Part 191 - PHMSA OPS, CSLC, CPUC ^b	<ul style="list-style-type: none"> • Sets requirements for annual reports, incident reports, and safety-related condition reports.
49 CFR Part 192 - PHMSA OPS, CSLC, CPUC ^b	<ul style="list-style-type: none"> • Sets minimum Federal safety standards for transportation of natural gas and other gases, including minimum materials properties such as yield strength; design formulas; standards for valves, flanges, fittings, supports and anchors; pipeline pressure controls; welding requirements; installation designs and limitations; corrosion control and monitoring; testing and inspection requirements; remedial and repair measures; environmental protection and safety requirements; procedural manuals for operations, maintenance, and emergencies; damage prevention programs; incident investigation; gas odorization; and requirements for abandonment or deactivation of facilities. • Each pipeline operator must establish an emergency plan that includes procedures for minimizing the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for: <ul style="list-style-type: none"> - Receiving, identifying, and classifying emergency events, gas leaks, fires, explosions, and natural disasters; - Establishing and maintaining communications with local fire, police, and public officials, as well as coordinating emergency response; - Making personnel, equipment, tools, and materials available at the scene of an emergency; - Protecting people first and then property and making them safe from actual or potential hazards; and - Implementing emergency shutdown of the system and safely restoring service. • Requires each operator to establish and maintain a liaison with the appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency and to coordinate mutual assistance. • Subpart O describes Pipeline Integrity Management Programs for High Consequence Areas. Continuing public education programs must convey information about: <ul style="list-style-type: none"> - The use of a one-call notification system prior to excavation, and other damage prevention activities; - The possible hazards associated with unintended releases from the pipeline facility; - The physical indications that such a release may have occurred;

Table ES-3 Major Laws, Regulatory Requirements, and Plans for Public Safety Regarding Pipelines^a

Law/Regulation/Plan/Agency	Key Elements and Thresholds; Applicable Permits
	<ul style="list-style-type: none"> - What steps should be taken for public safety in the event of a pipeline release; and - How to report such an event. • The Final Rule on Operator Public Awareness Programs (May 2005) states under 192.616: (d) The operator's [public awareness] program must specifically include provisions to educate the public, appropriate government organizations, and persons engaged in excavation-related activities. (e) The program must include activities to advise affected municipalities, school districts, businesses, and residents of pipeline facility locations. (f) The program and the media used must be as comprehensive as necessary to reach all areas in which the operator transports gas. (g) The program must be conducted in English and in other languages commonly understood by a significant number and concentration of the non-English speaking population in the operator's area.
49 CFR Part 199 - PHMSA OPS, CSLC, CPUC ^b	<ul style="list-style-type: none"> • Requires drug and alcohol testing for pipeline operators.
State	
CPUC General Order 112-E State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems (CPUC 1996) - CPUC	<ul style="list-style-type: none"> • More stringent than USDOT requirements. • Rule 30 "Transportation of Customer-Owned Gas," limits specific concentrations for a number of substances, including hydrogen sulfide, mercaptan, sulfur, and hazardous substances.
Local	
- South Coast Air Quality Management District	<ul style="list-style-type: none"> • Issues specific rules for the sulfur content of natural gas.
- Ventura County Air Pollution Control District	<ul style="list-style-type: none"> • Issues specific rules for the sulfur content of natural gas.

Notes:

^aThis table is included here because of the overriding public concern regarding safety. A similar table of regulations is presented for each environmental resource discussed in Chapter 4.

^bThe USDOT, through PHMSA OPS, has statutory authority for pipeline safety in the U.S. but has delegated that authority for intrastate utility-owned natural gas pipelines to the CPUC.

4.3 MARINE TRAFFIC

The FSRU mooring would be approximately 2 NM (2.3 miles or 3.7 km) from the edge of the nearest shipping lane. The subsea pipeline route would cross the Southbound and Northbound Coastwise Traffic Lanes, the Separation Zone, and parts of the Point Mugu Sea Range not normally used for missile impacts.

Marine activities associated with site preparation and installation of the FSRU, subsea pipelines, and shore crossing may increase maritime traffic and interfere with operations at the Point Mugu Sea Range.

To reduce impacts associated with increased maritime traffic, mitigation measures during construction would include using Notices to Mariners, guard boats, and safety vessels; having daily safety briefings; making and heeding Securite broadcasts; posting construction sign schedules in local ports and marinas; coordinating daily with the U.S. Navy; and avoiding as much as possible the waters of the Point Mugu Sea Range.

Impacts from facility operations include the following: (1) the transit of LNG carriers, tugboats, and supply/crew vessels to and from the FSRU would increase maritime traffic, (2) the presence of the FSRU and transiting LNG carriers could increase safety hazards, and (3) transiting LNG carriers may disrupt operations at the Point Mugu Sea Range or the Southern California Operations Area (SOCAL) Range Complex.

To decrease the potential of risk of vessel collision, the location of the FSRU would be placed on navigational charts and Project service vessels would use established routes to and from Port Hueneme. The Applicant would establish procedures for potential delays of the LNG carriers, and the FSRU would monitor inbound and outbound LNG carriers. To decrease potential Naval operations interference, the Applicant would coordinate regularly with the U.S. Navy and would provide them with the LNG carrier schedule. The Applicant also would make Securite broadcasts when LNG carriers are docking or undocking. In addition, the FSRU would have an Automatic Identification System, and a tugboat would patrol the safety zone around the FSRU. Officials at the Port of Hueneme believe that the increased vessel traffic and berths at the Port from the Cabrillo Port facility would have negligible effects on Port operations.

4.4 AESTHETICS

The presence of the FSRU would change the visual character of the ocean view for recreational boaters traveling several miles offshore, including visitors on whale watching and Channel Islands National Park boat trips. The presence of the FSRU would cause a long-term significant adverse change in the visual character of the open ocean for boaters who travel near it. There are no mitigation measures that would reduce this to a less than significant impact.

Night lighting used during pipeline construction and FSRU operations would be visible from the shore and to residents living in the foothills and higher elevation areas in Malibu, and from the top of Anacapa Island, thereby altering the nighttime viewshed.

The lights would be visible on the horizon and would not be distinguishable from vessel lights. Implementation of a construction/operations lighting control plan would limit the amount of light that would be perceived to that what is necessary for safety. This would reduce nighttime lighting impacts to below the significance criteria.

From the shoreline, and particularly from higher elevations, the FSRU would be seen, but would appear as a thickening on the horizon.

During construction, onshore staging areas and construction equipment would be visible to residents and travelers on City Image Corridors/Scenic Highways, but this would be a temporary impact that could be mitigated to less than a significant level. In addition, the Applicant would be required to restore the landscape to preexisting conditions.

4.5 AGRICULTURE AND SOIL RESOURCES

The onshore pipeline in the City of Oxnard and Ventura County would be constructed through a largely agricultural area. In contrast, the City of Santa Clarita has few agricultural areas and none of these areas would be affected by the installation of the onshore pipelines.

During construction, approximately 57 acres (23 hectares [ha]) of Farmland of Statewide Importance and 52 acres (21 ha) of Prime Farmland soil would be disturbed temporarily. The Applicant would compensate the landowner for the temporary loss of the farmland and for any loss of productivity. To minimize any damage to agricultural fields, the Applicant would employ a weed management plan, and salvage and replace topsoil. The Applicant also would try to protect substructures, such as drain tiles, and replace any that are damaged. During construction the Applicant could remove as many as 2,400 trees, although the actual number would likely be much less. This would be a potentially significant impact. The Applicant would replant small orchard trees and minimize the number of mature orchard trees removed during final design. The expansion of the Center Road Valve Station would result in the permanent loss of approximately 0.1 acre (0.04 ha) of Prime Farmland soils.

Potential impacts of construction include increased compaction of the soil, reduced fertility due to soil mixing, poor revegetation, and the introduction of noxious weeds. The Applicant would minimize soil mixing, reduced fertility, and the introduction of noxious weeds by salvaging and replacing topsoil and by implementing a weed management plan. The Applicant would implement a plan to suppress dust with potable water sources or water sources approved for discharge near agricultural uses.

4.6 AIR QUALITY

The vast majority of Project operations would take place in the Pacific Ocean, outside of the boundaries of any designated Federal air quality control region or California county. A small portion of Project vessel operations would occur within Ventura County waters. FSRU operations would be subject to all Federal, State, and local regulations applicable to the nearest onshore area, Ventura County, as administered by the U.S.

Environmental Protection Agency. As the FSRU would be located roughly between mainland Ventura County and the Channel Islands, the U.S. Environmental Protection Agency determined that it would most appropriate to have the FSRU regulated and permitted in the same manner as sources located on the Channel Islands (as opposed to sources located in mainland Ventura County). The U.S. Environmental Protection Agency has also determined that Federal Prevention of Significant Deterioration regulations would not apply to the Project since potential emissions are below major source thresholds.

In order to reduce overall Project emissions, the Applicant has proposed to fuel LNG carriers and other Project vessels operating within 25 miles of the coast of California primarily with natural gas. The Applicant reduced, by more than half, the number of weekly and annual transits made by the crew boat/supply boats to and from Port Hueneme and the FSRU. The Applicant has also agreed to identify an emission reduction program (in addition to reductions inherent to the Project) that would reduce annual emissions of oxides of nitrogen (NO_x) by an amount up to the FSRU's annual NO_x emissions. In addition, the Applicant, with respect to LNG carrier emissions, would continue consultations with the California Air Resources Board in an effort to identify additional emission reduction measures.

Project-related construction would take place in Ventura County, Los Angeles County, and Federal waters. Ozone precursor emissions from onshore construction activities, though short-term, would exceed significance thresholds established by local air quality management districts. Air quality impact screening also indicates that particulate emissions generated during onshore construction activities could lead to potential exceedences of ambient air quality standards. To reduce construction emissions, the Applicant would be required to prepare and implement a Construction Emissions Mitigation Plan and a Fugitive Dust Control Plan to minimize emissions from equipment engine exhaust and fugitive dust. As Project construction emissions in Los Angeles County exceed General Conformity Rule de minimis thresholds, the USCG will also prepare a General Conformity Determination that specifies that the Applicant identify additional emission reductions that fully offset all NO_x emissions generated by construction activities in Los Angeles County.

4.7 BIOLOGICAL RESOURCES – MARINE

Marine ecosystems located along the proposed Project offshore pipeline route or mooring location are typical of coastal Southern California and include sandy beaches, rocky shores, and sub-tidal and pelagic communities. Invertebrate ecosystems include benthic (bottom-dwelling) animals, infauna occurring in soft substrata, and epifaunal communities on both hard and soft substrata. No special status invertebrate species are found within the identified communities. Potential Project impacts on benthic communities include crushing or smothering of individuals during pipelaying activities. These benthic communities are expected to recolonize the Project area within one year of construction. Thus, no mitigation measures are identified.

Marine fish communities common to the Project vicinity vary according to water depth, dominant strata, and habitat and include groundfish and pelagic (open sea) species. Four special status marine fish species are identified as potentially occurring within the area—steelhead, bocaccio, Pacific rockfish, and California grunion. Several coastal pelagic species are covered by fishery management plans directed by the Pacific Fishery Management Council, as are the major groundfish species. These species would temporarily avoid the Project area during construction but are expected to return to the area immediately after termination of construction, and impacts would be short-term. To minimize disturbance of marine biota due to lighting or noise, the Applicant would implement a lighting control plan during Project construction and operation and construction noise reduction measures. Mitigation measures for impacts to marine fish communities would include monitoring of intertidal work if construction occurs during grunion spawning season, avoidance of hard bottom habitat, and further assessment to reduce potential impacts to ichthyoplankton (fish eggs and larvae).

Thirty-four species of marine mammals, including whales, dolphins, porpoises, and seals and sea lions may occur in the Project area. Six species of cetaceans are listed as endangered, while two pinnipeds and the southern sea otter are listed as threatened. Potential impacts to marine mammals include noise impacts, collisions with the pipelaying vessel or support vessels during installation of the subsea pipeline, and entanglement with cables associated with anchoring the FSRU and with pipelaying activities. Additionally, noise associated with construction activities could potentially result in area avoidance or other migration, feeding, or behavioral changes. Several mitigation measures have been proposed to eliminate or minimize these impacts, including seasonal restrictions of construction to avoid migration seasons, marine biological monitors onboard vessels during construction activities, noise-reduction methods for construction vessels, and measures to minimize entanglement with gear used for anchoring and during construction.

Seabirds common to the area include shorebirds and various marsh species. Several species of shorebirds and seabirds are federally listed or State-listed and include the California brown pelican, marbled murrelet, and Xantus' murrelet. Potential long-term impacts on bird species in the Project area include potential collisions with the FSRU due to potential attraction of nighttime lighting. Short-term impacts include exposure to petroleum products on the water surface in the event of an accidental spill or release. Applicant measures and mitigation measures to minimize or reduce any potential impacts on marine birds include development and adherence to a spill prevention plan and light-shielding methods for lights for the FSRU.

Four species of sea turtles that are federally listed also occur within the Project vicinity. Potential short- and long-term impacts are similar to those for marine mammals. These include entanglement with gear used for anchoring or during construction and potential collision with support vessels during construction. Mitigation measures proposed would be similar to those identified for marine mammals.

4.8 BIOLOGICAL RESOURCES – TERRESTRIAL

The proposed Project is located within three biogeographical areas: the coastal zone, the Oxnard Plain, and the Santa Clarita Valley. The coastal zone supports habitat that consists of sandy beaches, wetlands, salt marsh, backdunes, and developed land. In the Oxnard Plain, the route crosses agricultural land, exotic tree rows, urban developed lands, non-native grasslands, southern foredunes, and exotic mixed riparian (water body-related) forest. The Line 225 Pipeline Loop pipeline routes traverse urban residential and industrial development, native coastal sage scrub, and Southern willow-cottonwood riparian habitat at the Santa Clara River, the South Fork Santa Clara River, and San Francisquito Creek in the Santa Clarita Valley.

The terrestrial biological resource section incorporates new biological data that were collected after publication of the October 2004 Draft EIS/EIR. The new data include:

- Special status plant species and tree surveys;
- Wildlife surveys of Federal and State special status species including birds, plants, and amphibians;
- Additional wetland delineation surveys; and
- The designation of critical habitat for the Pacific coast population of the western snowy plover in Ventura County along Ormond Beach.

The U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries are the primary agencies responsible for compliance with Federal fish and wildlife laws, including the Endangered Species Act (ESA). The CDFG is responsible for protecting and perpetuating State fish and wildlife resources. The Applicant would be required to address the proposed Project action in compliance with Section 7(c) of the ESA of 1973, as amended. Section 7 of the ESA ensures that, through consultation with the USFWS and NOAA Fisheries, Federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species, or result in the destruction or adverse modification of critical habitat and the consultation process is ongoing.

Although the Coastal Zone habitat present along the ROW in the vicinity supports special status species and critical habitat, impacts would be reduced to less than significant. Installation of the pipeline beneath Ormond Beach using HDB technology would limit the amount of surface disturbance to only a small area within the Reliant Energy Ormond Beach Generating Station. An accidental release of drilling fluids during pipeline installation at the shore crossing using HDB could cause indirect impacts to sensitive plants and vegetation; therefore, biological monitors would be on-site during drilling to ensure compliance with the HDB Contingency Plan.

Biological resource impacts of the pipeline that traverses the Oxnard Plain would be minimal because most of the ROW occurs within existing roadway or road shoulder. Habitat traversed by the pipeline includes agricultural land, including orchards, exotic tree rows, urban developed lands, non-native grasslands, southern foredunes, and

1 exotic mixed riparian forest. Cutting, clearing, and/or removing existing vegetation
2 within the pipeline ROW would cause the initial impact on species and their habitat.

3 Trenching activities could temporarily increase sedimentation and disturb and expose
4 soils, which may potentially cause erosion and bury or damage plants. Soil erosion and
5 sedimentation would be mitigated by the implementation of the Erosion Control Plan,
6 which includes measures such as minimizing areas that require clearing of vegetation,
7 implementing erosion control measures for work near streams, wetland, and waterways,
8 and containing construction debris and locating construction equipment away from
9 streams and waterways. A spill response plan would be incorporated into the SWPPP
10 to identify specific measures to prevent, contain, and clean up any spills that could enter
11 surface water pathways. To further minimize sedimentation, spill containment/
12 management measures would be implemented.

13 Impacts on water quality from sedimentation would have adverse impacts on special
14 status plants or wetlands; however, implementation of mitigation measures that avoid or
15 reduce the potential for soil and hazardous materials to enter wetlands, surface water
16 features, and sensitive habitat, such as requiring construction barriers and buffer set-
17 backs from sensitive habitat, would reduce this impact to below its significance level.

18 Upland vegetation removal during onshore pipeline construction, maintenance, and
19 repair activities could result in the loss of special status plants. The loss of individual
20 special status plants or known habitat for rare, threatened, or endangered plant species
21 would be considered a significant impact. The Applicant would conduct additional pre-
22 construction plant surveys to identify any sensitive plant species within the ROW. The
23 results of the surveys would be used to develop a Biological Resources Mitigation and
24 Monitoring Plan, which would identify biological resources mitigation, monitoring, and
25 compliance conditions and success criteria.

26 In addition, an employee awareness program would explain the applicable endangered
27 species laws and any endangered species concerns to contractors working in the area.
28 Biological monitors would be responsible for the supervision and verification of those
29 activities, and activities would be limited to confined ROWs. The Applicant would avoid
30 riparian (waterbody-related) impacts or restore impacted areas by identifying important
31 areas, consulting with the CDFG on unavoidable riparian impacts, and carrying out
32 restoration plans. Removal of trees would be avoided wherever possible, and replanted
33 on a 1:1 ratio. Impacts on rare and special status plants would be reduced to a level
34 below significance criteria by avoiding or reducing impacts to special status plants,
35 sensitive and high-value wildlife habitats, and trees protected by local ordinance or
36 policies.

37 Construction in wetlands or waters of the U.S. could remove vegetation, disrupt the
38 hydrology of the wetlands within and adjacent to the construction area, or alter the
39 habitat for special status plant species. Approximately 3.76 acres (1.5 ha) of wetlands
40 and 5.95 acres (2.4 ha) of waters of the U.S. could be affected along the Center Road
41 Pipeline, and approximately 3.82 acres (1.5 ha) of wetlands and 7.72 acres (3.1 ha) of
42 waters of the U.S. could be affected along the Line 225 Pipeline Loop. Impacts on the

hydrologic function of such features would be considered potentially significant. To avoid temporary or permanent impacts on wetlands and waters of the U.S. during construction, measures would include identifying areas to be avoided, limiting the width of the construction ROW, and limiting the type of construction methods used. Riparian protection measures would also minimize impacts to wetlands and waters of the U.S. to below the impact's significance criteria.

Construction-related disturbance could provide an opportunity and seedbed for the invasion of weeds, which could adversely affect special status plant species or habitats and upland vegetation. This would be a potentially significant impact, but would be reduced by weed management measures such as a noxious weed survey, removal of exotic plants from work areas, spraying and washing of vehicles and construction equipment to prevent the spread of noxious weed species, obtaining fill material from "weed-free" sources, and revegetating disturbed soils with an appropriate seed mix that does not contain introduced or noxious weeds.

Construction activities associated with pipeline installation, staging areas, HDD or HDB locations, and access roads could cause the mortality of small mammals, reptiles, and other less-mobile species. Animals most susceptible to direct mortality are ground-nesting birds, slow-moving species, and burrowing species. Most of the proposed pipeline routes would be constructed along disturbed habitats where most wildlife are common, wide-ranging, and locally and regionally abundant species, such as raccoons, opossums, and coyotes, which are expected to quickly recolonize the ROW after restoration activities are completed.

To minimize the potential for causing mortality of local wildlife, the Applicant would be required to engage a qualified wildlife biologist to conduct additional pre-construction surveys in advance of any vegetation clearing, or excavation or other activity that causes disturbance to surface soils.

4.9 CULTURAL RESOURCES

FSRU installation, offshore pipeline construction, and ship anchoring could disturb any historic or archaeological resources located on the seafloor or within seafloor sediments. An offshore survey identified fourteen sites within 328 feet (100 m) of the pipeline route that could contain objects of human origin. To ensure that none of these objects are damaged, the Applicant would conduct a more focused marine archaeological survey before pipeline installation begins to confirm location of these objects and would use navigational tools to avoid the location of all significant marine archeological resources. There is no evidence of Native American watercraft in the offshore environment in the Project area.

The onshore and offshore aspects of the Project could impact undocumented resources that are of value to Native American culture and heritage, particularly descendants of the Ventura Chumash. Mitigation measures for this potential impact include avoidance of cultural sites and other items of Native American concern; Native American monitoring of Project-related activities; implementation of procedures specified in the

CEQA such as the Health and Safety Code and the Public Resources Code if human remains are discovered in the Project area; and relocating and replanting grasses of Native American concern.

Ground-disturbing activities, including trench excavation, pre-construction ditching, grading, horizontal boring, and HDB and HDD activities also could impact previously unknown onshore archaeological resources that have not yet been documented.

A pedestrian survey of the onshore pipeline routes was completed in 2005. Before onshore construction would begin, the Applicant would employ a qualified archaeologist to conduct a pre-construction pedestrian survey over any segments of the route that have not already been surveyed. After onshore construction is initiated, mitigation measures would include having a qualified archaeologist monitor all construction within 328 feet (100 m) of onshore archaeological sites and areas with high potential for the occurrence of sites buried under alluvium, including the shoreline crossing. If sites were identified during construction, the monitor could stop construction and evaluate the resource to determine the next course of action. The Applicant has developed and would implement an unanticipated discovery plan. The plan provides procedures to be undertaken for treatment of discovery of remains.

4.10 ENERGY AND MINERAL RESOURCES

The proposed Project does not cross any known aggregate or other onshore mineral resource locations, although a number of oil and gas leases are located in the vicinity of the proposed and alternate onshore pipeline routes. Given that the proposed onshore pipeline routes are generally located in existing ROWs and that there is an existing moratorium on developing new oil and gas resources offshore in the Project area, any additional development of these resources (if the moratorium were lifted and/or litigation ceased) would likely implement directional drilling techniques. Thus, no significant impacts on mineral resources from the proposed Project were identified.

The Project would deliver an annual average of 800 million cubic feet (22.7 million cubic meters [m^3]) per day of natural gas to Southern California. Therefore, within the context of the California Energy Action Plan, the Project has a beneficial impact on local and regional energy supplies.

4.11 GEOLOGIC HAZARDS

The proposed Project would be located in the Ventura and Santa Monica Basins. Several active or potentially active faults are located within the Project area, but few are crossed by the proposed pipelines. Geologic hazards such as seismicity, i.e., active faults, earthquakes/ground shaking, and soil liquefaction, slope instability (landslides), subsidence, flash floods, and debris flows could threaten the integrity of the pipeline facilities onshore and offshore but would be taken into account in establishing the final design criteria for the pipelines.

The proposed Project pipeline routes would likely cross several buried faults both onshore and offshore in this seismically active area. Seismic events such as ground

shaking or mass movement could damage the pipelines or other facilities. The pipelines and aboveground facilities would be designed and constructed in accordance with Federal and State standards and guidelines to reduce the potential impacts on pipeline integrity from these hazards. Except near shore, the Applicant would install the offshore pipelines directly on the seabed surface to allow enhanced flexibility to help it withstand movement caused by fault rupture.

The Applicant has prepared a series of geotechnical studies that have been incorporated in this analysis. The Applicant would also conduct site-specific seismic hazard studies prior to construction and evaluate suspected active fault crossings to accurately define the fault plane location, orientation, and direction of anticipated offset, and the magnitude of the anticipated offset at the fault locations. In the final design, the Applicant would evaluate the following parameters: larger trench, engineered backfill, thicker wall pipe, shutoff valves placed on either side of fault crossings, and telemetric control for final pipeline design. The Applicant would also apply proper seismic design to avoid damage to Project components during ground shaking.

Impacts from trenching, HDB, or HDD would include temporary changes in the natural topography that might increase the potential for erosion or differential compaction due to trenching and grading activities. All methods used to bury the pipelines would temporarily disturb the subsurface and could provide a preferential path for drilling fluids. To minimize these impacts, the pipeline routes have been selected to avoid areas of potential erosion and steep slopes. After construction, the Applicant would restore the natural elevation and drainage conditions as closely as possible to preexisting conditions following industry standard practices for backfilling, compacting, regrading, and revegetation.

There is little risk of damage from tsunamis to facilities located in deep water, but significant erosion, high current, and wave forces could occur in shallow water near the shore. The pipeline at the shore crossing would be buried a minimum of 50 feet (15.2 m) below sea level, which would minimize potential damage from tsunamis.

Onshore pipeline installation could permanently disturb or destroy paleontological resources. To prevent this, a qualified paleontologist would be required to monitor excavations in suspected areas and would be responsible for properly excavating, collecting, and cataloging any paleontological specimens discovered.

4.12 HAZARDOUS MATERIALS

The proposed Project would transport, store, use, and dispose of hazardous materials and wastes. The storage and use of hazardous materials, as well as the storage and disposal of hazardous wastes, is regulated by the U.S. Environmental Protection Agency and State, and local regulatory agencies. The Applicant has developed a Facility Response/Spill Prevention, Control and Countermeasures Plan to maintain safe operating conditions aboard the vessels.

Some locations along the proposed pipeline routes are known or suspected to have soil or groundwater contamination from previous or existing activities unrelated to the proposed Project. Construction crews could encounter contaminated soil or water during clearing, trenching, or drilling operations. The Whittaker-Bermite site along the proposed Line 225 Pipeline Loop ROW is currently undergoing groundwater and soil cleanup; the Applicant would be required to coordinate with the California Department of Toxic Substances Control (DTSC) to determine whether additional surveys or screening-level sampling may be warranted in areas to be disturbed by pipeline construction.

Activities associated with site preparation, construction, and drilling, as well as operations and maintenance activities, could result in an accidental spill of hazardous materials or oil and exposure of workers or the public. In addition to complying with Federal and State regulations, the Applicant would use best management practices concerning the storage of hazardous materials at the staging areas. The Applicant, or its designated representative, would maintain equipment in operating condition to reduce the likelihood of fuel or oil line breaks and leakage and prepare a detailed hazardous material contingency plan that outlines how the contaminated soil and/or groundwater would be handled and disposed, as well training for personnel.

In areas where the proposed onshore pipeline alignments diverge from existing ROWs, the Applicant or its designated representative would conduct surveys to identify potential areas of soil and/or groundwater contamination. If buried hazardous materials or contamination are discovered, a hazardous material contingency plan and best management practices would be implemented to prevent migration of contaminated soils or other materials off site.

4.13 LAND USE

The onshore pipelines would be installed mostly in existing roadways, on road shoulders, or in easements. The proposed Center Road pipeline route would traverse parts of the City of Oxnard and unincorporated areas of Ventura County. In Oxnard, the proposed Project would traverse primarily agricultural fields and open space with some residential and commercial land uses. In Santa Clarita, the proposed pipeline route would traverse open space and residential, industrial, and commercial areas. The proposed pipelines would not cross any sensitive land uses such as schools or hospitals and none are directly adjacent to the proposed pipelines. Although several potential locations for new or expanded schools have been evaluated by local school districts, none has been proposed to date for design or construction.

Surface facilities would be constructed on or immediately adjacent to the Reliant Energy Ormond Beach Generating Station or SoCalGas property. During installation of the onshore pipeline, access to business and residences would be maintained, although traffic congestion may affect roadways along the route.

The Channel Islands National Marine Sanctuary (CINMS) is currently preparing a supplemental EIS that evaluates potential boundary changes of the CINMS. The

Cabrillo Port FSRU would be located within the most expansive of the CINMS working boundary concepts. While the potential siting of the FSRU and pipelines would not preclude the sanctuary from including this area within new boundaries, they would be taken into consideration by CINMS when making final decisions regarding the sanctuary boundaries.

From approximately MP 0.0 to MP 0.2, the proposed Project route is located within the Ormond Beach Coastal Zone Area. The Oxnard Coastal Land Use Plan governs land uses in this zone. The policy for the Ormond Beach area encourages industrial and recreational uses while protecting beaches and wetlands. Part of the area is designated specifically for energy. Planning is underway for restoration of wetlands and compatible recreational facilities to the southwest and northeast of the Reliant Energy Ormond Beach Generating Station. Some land has been acquired and additional purchases are planned.

The Project would require a Federal coastal consistency determination by the California Coastal Commission.

Properties would be encumbered by new permanent ROW easements, and the Applicant would compensate landowners for use of these easements. Construction may cause temporary disturbances or nuisances to nearby residents and businesses or to special land uses. The Applicant or its designated representative would minimize disruption in residential and business areas during construction, such as restricting activity to daytime hours, installing safety fencing, and minimizing the time that trenches may remain open, and maintaining minimum distances between construction areas and residences. In addition, the Applicant or its designated representative would coordinate with utility providers to minimize potential conflicts with utility maintenance and construction activities.

4.14 NOISE AND VIBRATION

Noise would be generated during the offshore and onshore construction and the offshore operations of the Project. Existing offshore noise includes noise generated by commercial, recreational, and U.S. Navy vessel traffic. Noise generated onshore is location-specific, but includes ocean, bird, vehicle, agricultural, and industrially generated noise.

Offshore construction noise would be temporary, and the Applicant has proposed to operate construction equipment on an as-needed basis and would ensure that engine covers and mufflers are in place and in good working condition.

Temporary noise and vibration generated during construction at the shore crossings and onshore could temporarily increase noise and vibration levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions. Vibration levels would exceed significance criteria. The Applicant has incorporated construction noise reduction measures that would reduce noise levels and vibration; however some residents and businesses would still be subject to a short-term

significant impact from the construction noise that are likely to exceed local noise ordinances.

During offshore operations, equipment on the FSRU would generate airborne noise, as would the vessel traffic to and from the FSRU. The noise analysis of the FSRU operation indicates that noise generated by the FSRU would be noticeable at 3.1 miles (5 km) from the FSRU and at 0.6 miles (0.97 km) would interfere with conversation. Boaters transiting the Area to be Avoided would potentially notice the noise levels, and impacts to these boaters would exceed the significance criteria; however, the impact would be transitory as boaters leave the area.

Temporary noise generated by support vessels during offshore operations, such as LNG carriers, crew boats, supply vessels, and helicopters, could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers. To minimize these impacts, the Applicant would operate crew boats, supply vessels, and helicopters during daytime hours, except during emergencies; however, marine traffic transiting near the Project area would still be subject to a short-term significant impact from the vessel/helicopter noise.

No known noise would be generated from onshore operations. Noise could be generated from repair and maintenance activities. The noise generated would be temporary and would be similar to the levels generated during construction.

4.15 RECREATION

Offshore recreation in the Project area includes boating, sportfishing, sailing, whale-watching, and surfing and is important to the local economy. The presence of the Project would alter the experience of recreational boaters who travel miles offshore, including visitors on whale-watching trips and other visitors to the Channel Islands National Park. Some boaters are accustomed to the large ships traveling nearby in the shipping lanes. However, because some recreational boaters would view the presence of the FSRU as a significant adverse visual impact to the seascape, there would be a long-term significant impact to the recreational resource.

Project activities could restrict recreational fishing because of the creation of a 1,640-foot (500 m) safety zone extending from the stern of the FSRU and the exclusion zone for LNG vessels. However, because the safety zone around the FSRU would be small with respect to the entire area available for sportfishing and most recreational fishing occurs much closer to shore, these activities would not significantly reduce the regional sportfishing resource. Offshore construction would temporarily restrict recreational fishing in the immediate construction area.

The shore crossing would cross beneath Ormond Beach and therefore beach access would not be affected. The Project is within 3 miles (4.8 km) of three beaches or beach parks. Neither the Center Road nor the Line 225 pipelines would cross public parks, but several recreational facilities are located nearby. Contractor yards would be located at least 1 mile from any recreation area to reduce potential of interference/disturbance with the recreational area. Construction activities along the South Fork of the Santa Clara

River would temporarily close multi-use trails. To reduce the impact of the trail closure, the Applicant or its designated representative would restore the trail to its preexisting condition and post trail closure signage and information during construction and restoration.

4.16 SOCIOECONOMICS

Social and economic factors in the Project areas are population, housing, employment, public services, tax revenues, tourism, and commercial fishing. Potential impacts to housing, employment, public services, and tax revenues may result from the influx of construction workers during installation of the pipelines, and changes to services and real property as a result of the pipelines in the ROWs after installation.

An estimated 368 persons, including workers and their families, would migrate to the area during Project construction and would need housing for at least the nine-month onshore construction period. The housing stock, including hotel/motel rooms and camping sites, appears sufficient to accommodate the temporary influx of workers and their dependents during the construction phase, so there would be no significant effect on the local housing market.

In real estate transactions, utility ROWs and easements are described and disclosed in a title report to the purchasing parties. Property taxes are based on the value of the real property, whether land, improved property, or an easement. As such, a pipeline easement on a property may affect the value of a property and therefore may also affect taxes.

Offshore, potential impacts from the proposed Project to commercial fishers could result from pipeline interference with trawling gear, temporary restricted areas around offshore construction areas, and permanent exclusion of areas surrounding the FSRU. Commercial trawl fishing grounds are present along much of offshore pipelines. Fishermen would not be excluded from this area, but bottom trawlers would likely need to raise their gear to cross the pipelines. Burial of the pipeline using HDB near shore would eliminate long-term interference by the pipeline with commercial trawl fishing gear. However, trawl fishers may prefer to fish elsewhere to avoid the potential loss of gear.

Vessels would be temporary excluded from fishing grounds directly along the pipeline route during construction, but the overall impact on fishing from exclusion of fishing in the Project area, and thus increased pressure in other areas, would not be significant. However, if there is a complaint by a fisher related to Project impacts, the Applicant would negotiate mitigation using guidance from Joint Oil/Fisheries Committee guidelines for lost or damaged gear. The Applicant would be required to comply with a mutually agreed-upon settlement between itself and the injured party.

Vessels would be permanently restricted from the 1,640-foot (500 m) safety zone surrounding the FSRU. The safety zone would be small compared to overall fishing

grounds in this portion of Southern California; therefore, this would not be considered a significant impact.

Construction of the Project would include mitigation measures to reduce or avoid such impacts, including working with land and business owners to maintain access during construction and minimizing disruption to traffic and compensation for lost fishing gear.

4.17 TRANSPORTATION

The proposed routes for most of the onshore pipelines are in or near existing roadways or ROWs; however, bike routes and traffic lanes would be crossed. No airports would be affected by the proposed Project.

Given that construction would occur primarily in existing ROWs, impacts on the local transportation infrastructure would be expected to include reductions in the availability of on-street parking, closures of some bike routes, delays on transit and railway routes, traffic lane closures, and temporary increases in traffic levels on roadways and at intersections along or near the pipeline routes. Before construction, the Applicant would develop a traffic control plan for review and approval by the lead agencies that would address actions and work scheduling to minimize disruption of all modes of transportation—pedestrian, bicycle, private motor vehicle, bus/transit, and rail—in the Project area. This plan would also identify actions to be taken to limit and repair potential damage to existing roadways from heavy construction equipment and to limit the amount of mud, grit, and sand carried on dirty equipment or construction vehicle tires from the Project areas onto public roadways, railway tracks, or bike routes. In addition, the Applicant or its designated representative would avoid construction and construction-related traffic at the intersection of State Route (SR) 118 (Los Angeles Avenue) and Santa Clara Avenue in Ventura County, which is already congested during peak hours (Level of Service [LOS] E) during peak traffic periods. During construction, railway operations would not be disrupted, nor would the movement of emergency vehicles be restricted.

During operations, the Project would not result in any impacts to the transportation onshore infrastructure. No roads would require improvement to allow equipment to access the Project. The Project would not disrupt access to or from farms, residences, or businesses adjacent to the pipeline. The Applicant would provide off-street parking for FSRU crews and therefore would not permanently reduce the supply of available parking.

4.18 WATER QUALITY AND SEDIMENTS

The FSRU and offshore pipeline lie within the Southern California Bight. The sediment and water quality of the Southern California Bight has been extensively studied. Water quality parameters vary according to location and depth. The proposed Project onshore pipeline routes would cross eight surface water bodies in both Oxnard/Ventura County and Santa Clarita.

Discharges from the FSRU would be regulated by a National Pollutant Discharge Elimination System permit, which would ensure that discharges are within established water quality thresholds. The Applicant is responsible for developing and implementing a Facility Response Plan for the FSRU, Spill Prevention, Control, and Countermeasures Plans for onshore and nearshore Project activities, and oil spill contingency plans for a Project construction vessel and for the FSRU.

Accidental releases of drilling fluids at the shore crossing during construction could degrade surface water or groundwater quality for the short term. To avoid this potentially significant water quality impact, the Applicant would implement its Drilling Fluid Release Monitoring Plan to minimize the potential for releases of drilling fluids or to properly cleanup the drilling fluid in the event of a release.

The proposed onshore pipeline alignments would cross eight creeks, agricultural drainages, and flood control channels. Impacts associated with crossing these surface waters may include erosion, sedimentation, and release of drilling fluids from HDD activities. The Applicant would ensure that a pit has been excavated at the exit hole to collect and contain the drilling fluids and cuttings. Additional mitigation measures to reduce associated impacts would include implementation of an erosion control plan outlining best management practices for control of erosion and sedimentation, especially at stream crossings; and monitoring of activities at stream crossings. To reduce the potential to cause erosion during the release of hydrostatic test water, an energy dissipater would be used.

During onshore operations, releases of petroleum or other contaminants during maintenance activities could temporarily degrade surface water quality. To avoid such impacts, the Applicant would implement a spill response plan and use best management practices, such as using silt fencing and straw bales at creek crossings, for major maintenance activities that could result in spills that could enter surface water pathways.

4.19 ENVIRONMENTAL JUSTICE

Census data show that a larger percentage of Hispanics or Latinos reside along the proposed Center Road Pipeline and its alternate routes than in Ventura County and the State in total; thus, there is a potential for disproportionate adverse impacts on minority communities. The Hispanic or Latino population along the proposed Center Road Pipeline is 58 percent; along Alternative 1 is 82 percent; along Alternative 2 is 55 percent; and along Alternative 3 is 59 percent. In addition, the population along the Center Road Pipeline route that is below the poverty level exceeds the number in Ventura County.

Along the Line 225 Pipeline Loop and its alternatives, the census data indicate that no minority or low-income community is present that warrants a more detailed analysis.

Adverse impacts associated with construction of the onshore pipelines would occur along the entire pipeline route, and in areas with a variety of socioeconomic

backgrounds, and thus are not considered to adversely affect minority or low-income populations disproportionately. Significant adverse impacts associated with Project operations, however, are considered in this analysis.

The manufactured home and mobile home parks located on Pidduck and Dufau Roads near MP 4.1 of the proposed Center Road Pipeline route were identified as areas where a significant impact could disproportionately affect minority or low-income residents because the housing is less robust. The segment of the proposed pipeline in proximity to these sites is about 0.2 mile in length. This constitutes less than 1 percent of the total length of the 14.7-mile (23.7 km) pipeline.

The Applicant would construct the pipeline to meet Class 3 standards. In addition, public safety mitigation measures that would reduce potential safety impacts include instituting a pipeline integrity management program, which would confirm all potential High Consequence Areas (HCAs) and implement a public education program before beginning pipeline operations; installing additional mainline valves equipped with either remote valve controls or automatic line break controls along the pipeline; and defining the area near MP 4.1 as an HCA. These mitigation measures are intended to reduce potential risks by reducing the potential frequency or likelihood of an accident as well as reducing the potential consequences should an accident occur.

The above design and engineering requirements have been developed to reduce the risks of a potential release of natural gas along the entirety of the route. However, the requirement that the area in the vicinity of MP 4.1 be treated as a HCA is in specific consideration of the type of housing and outdoor activity levels known to exist in the vicinity of MP 4.1. The intent of the additional site-specific requirements for additional inspection, testing, maintenance, reporting, and public education requirements for the operation of this pipeline segment is to further reduce the potential risks related to the proposed pipeline in the area of MP 4.1 as compared to the remainder of the route.

With the implementation of these measures, in conjunction with the additional requirements put in place with treatment as a HCA, the presence and operation of the proposed pipeline, as modified, would not constitute a significant environmental justice impact.

4.20 CUMULATIVE ANALYSIS

In accordance with NEPA and the CEQA, this analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects within the Project area that were identified at the time of publication of the Notice of Intent/Notice of Preparation in March 2004 and updated in December 2005. Projects identified in Section 4.20 that would result in cumulative impacts in combination with the proposed Cabrillo Port project are summarized below.

Crystal Energy LLC has submitted an application for the Clearwater Port LNG import and regasification facility, which would use an existing oil and gas platform, Platform

Grace. The platform is located 21.7 NM (25 miles or 40.2 km) from the proposed Cabrillo Port.

The potential for cumulative public safety impacts from simultaneous incidents involving both Cabrillo Port and Clearwater Port would be limited to intentional acts. Although the probability of simultaneous offshore incidents is very low, such incidents could result in serious injury or fatality to members of the general public.

Another proposed energy project is a 27-acre (10.9 ha) onshore LNG receiving terminal at the Port of Long Beach, proposed by Sound Energy Solutions (SES). The proposed SES project is not in the vicinity of the proposed Cabrillo Port Project; therefore, the only potential cumulative impact associated with this facility and the proposed Project would be a regional increase in vessel traffic; however, the increase in local vessel traffic for the SES project would be concentrated at the Port of Long Beach, and the increase in vessel traffic for the Cabrillo Port Project would be in the Santa Barbara Channel Traffic Separation Scheme (TSS). Proposed expansions of the Port of Hueneme and the Port of Long Beach would also result in a net increase in vessel traffic.

The proposed offshore pipelines for Clearwater Port and Cabrillo Port would cross the shore at distance of about 7 miles (11.3 km) from each other. No cumulative public safety effects would be anticipated from the operation of the offshore pipelines. Onshore, the pipelines from the two ports would be in separate pipeline corridors, except potentially within approximately two miles of the Center Road Valve Station. The potential for cumulative impacts due to routing additional pipelines from the Clearwater Port project within the same corridor is limited to the potential consequences from: (1) intentional damage to one or more natural gas pipelines located close to one another, and (2) initiation of more than one event at different locations along the pipelines. Although the probability of an offshore or onshore pipeline incident associated with the proposed Project is very low, such an incident could result in serious injury or death.

Cabrillo Port and Clearwater Port in combination would be considered a significant cumulative impacts to offshore recreation, regional aesthetics, and short-term offshore noise. In addition, proposed expansions of the Port of Hueneme and the Port of Long Beach would add to cumulative short-term noise impacts.

Potentially significant cumulative regional air quality impacts due to the Clearwater Port facility and the Project can be expected; however, these cumulative impacts are difficult to determine because an air analysis comparable to that done for the proposed Project has not been performed for the Clearwater Port Project. The Project would generate emissions of greenhouse gases that would be insignificant alone, but could exacerbate, in combination of existing greenhouse gases, global warming effects.

Clearwater Port would have similar agricultural effects to those of the proposed Project. The onshore pipeline would be installed in some agricultural lands, but these areas would only be disturbed temporarily. Conversion of soils classified as either Prime Farmland or Soils of Statewide Importance is considered a significant impact; therefore, the combined impacts of the Project with the potential of conversion of these types of

soils with the Crystal Energy project would have a significant cumulative impact on agricultural soils.

5.0 OTHER NEPA/CEQA CONSIDERATIONS

Both NEPA and the CEQA require analysis of significant irreversible changes, including unavoidable impacts. Nineteen Project impacts (identified in the summary of Chapter 6, below) are considered to be Class I impacts, which are significant impacts that cannot be mitigated to below their significance criteria. Approval of the Project would be subject to a Statement of Overriding Considerations under the CEQA.

6.0 CONCLUSION

Mitigation measures have been developed or recommended to avoid, minimize, or compensate for adverse impacts on each resource; however, a number of adverse effects would remain significant and unavoidable.

Significant and unavoidable offshore impacts during Project operations would be potential public safety impacts from a high-energy marine collision or damage to subsea pipelines; marine biology, air quality, and water quality impacts from a significant spill or LNG release from the FSRU or offshore pipelines; and aesthetic, noise, and recreational impacts for boaters traveling near Cabrillo Port. Significant and unavoidable offshore impacts during construction would be noise impacts, and marine biology and water quality impacts that could result from a significant spill or LNG release.

Significant and unavoidable onshore impacts during Project operations would be public safety impacts resulting from damage to onshore pipelines, and the permanent loss of 0.4 acres of agricultural land in Ventura County. During construction, significant onshore impacts would be air quality impacts due to increases in criteria pollutants in a non-attainment area and increases in particulate emissions in an area where State ambient air quality standards are already in violation; noise and vibration impacts near Project construction sites; and transportation impacts at the intersection of SR 118 (Los Angeles Avenue) and Santa Clara Avenue, which is already congested during peak hours.

GROWTH-INDUCING IMPACTS

The supply of additional natural gas to Southern California would not likely induce growth in the region, but would serve both the existing and anticipated demand for natural gas as indicated by the CEC. Cabrillo Port would not be the sole supplier of natural gas to the region. Regional development or infrastructure growth would occur with or without this Project.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126.6(e)(2) of the State CEQA Guidelines provides in part, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also

identify an environmentally superior alternative among the other alternatives.” If the proposed Project were not approved, or if a similar project with fewer or less significant environmental impacts than the proposed Project were approved, the No Action Alternative would clearly be the environmentally superior alternative. Similar projects, such as other offshore LNG or pipeline facilities, are discussed in Section 3.4.1 in Chapter 2, “Alternatives.” With the information available and the uncertainty of the other potential offshore LNG projects, it is difficult to determine whether the No Action Alternative is the environmentally superior alternative. In addition, only one other offshore alternative to the proposed Project is deemed feasible and analyzed in this document. Accordingly, this document does not identify an environmentally superior alternative within the context of Section 15126.6(e)(2) of the State CEQA Guidelines.

MAJOR CONCLUSIONS

The conclusions presented are those of the environmental staff of the USCG, MARAD, and the CSLC.

Impacts are classified using the four categories identified in Table ES-4. Both the CSLC and USCG criteria apply to the class definitions. For example, Class I impacts cannot be mitigated to a level below significance criteria. Potential impacts are identified by a bold letter-number designation, e.g., **Impact PS-1** in Section 4.2, “Public Safety: Hazards and Risk Analysis.” In accordance with the State CEQA Guidelines § 15093, the CSLC and other State permitting agencies would have to make a Statement of Overriding Considerations addressing Class I impacts prior to approval of the Project.

Table ES-4 Categories of Impacts

Class Definition	CSLC Criteria	USCG Criteria
Class I	Significant adverse impact that remains significant after mitigation	Major, permanent, long-term, or short-term
Class II	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria	Minor, long-term
Class III	Adverse impact that does not meet or exceed an issue's significance criteria	Minor, short-term, or temporary
Class IV	Beneficial impact	Positive, may be major or minor, short- or long-term or permanent

Table ES-5 presents a summary of all Project impacts, Applicant measures, and mitigation measures.

Table ES-5 Summary of Impacts and Mitigation Measures

Note: Impact classes are defined in Table ES-4. Acronyms for each resource are defined at the end of Table ES-5. Many of the measures listed apply to more than one resource; however, each measure is described only once under its primary resource. For example, AM MT-3a, Patrol Safety Zones, applies to Impacts PS-1, PS-2, MT-3, MT-4, BioMar-6, and BioMar-8, but is described in full only under Impact MT-3.			
Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
PUBLIC SAFETY [PS] (Section 4.2)			
FSRU or LNG Carrier			
<p>PS-1: <i>Potential Minor Release of LNG due to Operational Incident or Natural Phenomena at the FSRU or an LNG Carrier</i></p> <p>An incident at the FSRU or LNG carrier due to human error, upsets, or equipment failures, or as a result of natural phenomena (severe wave conditions, high winds, etc.) could cause a release of LNG from the FSRU or an LNG carrier that would have a limited area of effect.</p>	Class II	<p>AM PS-1a. Applicant Engineering and Project Execution Process. Regardless of any less stringent regulatory requirements, the Applicant would undertake the following steps to design, build, and operate the proposed Project:</p> <ol style="list-style-type: none"> 1. Prior to final project internal funding, undertake a full Front End Engineering Design (FEED) exercise with a suitably qualified and experienced contractor under the management of an Applicant technical team. This would define the engineering requirements for the complete Project and identify sources for all remaining detailed information and data, to be ready for internal Project sanction and final detailed engineering. 2. Undertake a comprehensive offshore site survey to determine bathymetry, geology, and geotechnical characteristics of the area in and immediately around the locations of each element of the Project. This would require mobilization of specialized marine vessels and crews to perform the acoustic surveying and soil coring for the shallow water horizontal directional boring (HDB) of the pipelines crossing under the beach to the FSRU mooring in deep water. The survey results would provide additional information for the final detailed design of the HDB, pipelines, cable crossings, pipeline end manifolds, and mooring system anchors. 3. Fully implement the proposed Project under a self-imposed "Safety Case" process for the detailed design of the proposed Project. This would begin with the FEED but could be completed only when the level of the facility definition is in the advanced detailed design phase. This would require a complex series of additional detailed safety checks and balances be put into place, including HAZID, hazard and operability studies (HAZOPs), quantitative risk analyses (QRA), formal safety analyses (FSA), and associated safety engineering exercises 	Less than significant

Table ES-5 Summary of Impacts and Mitigation Measures

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>such as process plant modeling and analyses. This would be finalized during the detailed design of the FSRU safety systems, the process plant and deck layouts, and the associated systems such as piping and utilities, and the control systems and procedures. Upon startup, the Safety Case would become a “living tool” for the facility operating team—one that would be updated and reanalyzed as needed based on operational experience—to ensure that the proposed Project meets or exceeds required standards during all phases of operation.</p> <p>4. Upon internal Project sanction/funding, ensure detailed engineering would be conducted for all components by suitably qualified and experienced contractors under the management of an Applicant technical team and in accordance with demanding technical requirements that would be carefully defined in contractual documents. The selected qualified engineering contractors would likely be different for the contractor designing the hull, regasification topsides, mooring, pipelines, etc. Using this process, the Applicant would ensure that all engineering is executed to meet or exceed the regulatory and Applicant’s internal requirements.</p> <p>5. Commission a series of model tests of the FSRU facility at an experienced and well-established model test basin. More advanced detailed theoretical analyses would be completed first to identify the governing criteria and cases to be modeled in the basin. These model tests would cover both the survival sea states without an LNG carrier moored alongside and the operational sea states with the carrier moored alongside the FSRU. FSRU motions and mooring system loads would be measured under survival storm conditions to confirm the calculated results. Similarly, relative and absolute motions of and between the FSRU and the berthed carrier would be measured to confirm the operability limits of the berth mooring,</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>fender, and loading arm systems. This would also provide information about FSRU motions for the detailed design of the topsides equipment.</p> <p>6. The Applicant would require independent third-party verification of detailed engineering, procured equipment, fabrication, construction, and offshore installation and commissioning of all Project components. Where such independent third-party verification would be required by a regulatory agency, or in order to obtain class certification, a single verification process would be conducted to ensure efficiency of this verification.</p> <p>7. During the construction phases of the proposed Project, both quality and safety audits at major fabrication/ construction sites would be undertaken by the Applicant to ensure quality and safety of the Project components. Actual safety and quality performance during construction would be a contractual obligation for the various contractors selected by the Applicant.</p> <p>8. Before releasing the FSRU from its inshore commissioning, i.e., before towing to the proposed Project site, and after offshore installation of all components, but before facility startup, the Applicant would conduct a formal pre-startup review. The status of the facility, quality assurance, "outstanding items," operational preparedness, and compliance with legal and regulatory commitments would be carefully reviewed in a team session with final checks before proceeding first with the tow and second with initial startup of LNG operations. A number of action items would generally be identified in such sessions; some would require closure before proceeding to the next step, and others would be identified for action by specific deadlines or milestones. This process and any findings would be formally documented.</p> <p>AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU. Class certification and a safety management certificate are required under international</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>agreements, i.e., through the International Maritime Organization (IMO), for vessels engaged in international voyages. Although this would not be required for the stationary FSRU, the Applicant would obtain class and safety management certification for the facility, including the subsea pipelines, pipeline ending manifest, and risers. The Applicant would voluntarily provide a documented management system that would be in compliance with the International Safety Management (ISM) Code and the Applicant's internal health, safety, engineering, and construction standards. When operational, the FSRU would be certifiable under ISM, International Organization for Standardization (ISO) ISO-9000 quality standards and ISO-14000 environmental standards.</p> <p>AM PS-1c. Periodic Inspections and Surveys by Classification Societies. The Applicant would have conducted periodic inspections of the FSRU by classification societies, including annual inspections and a full survey after five years of facility operation and every five years thereafter. This would help ensure that shipboard procedures are regularly reviewed and updated and that processing and emergency equipment would be maintained appropriately and repaired or upgraded as necessary.</p> <p>AM PS-1d. Designated Safety (Exclusion) Zone and Area to be Avoided. The Applicant would monitor a 1,640-foot (500 m) radius safety zone to be designated by the USCG around the FSRU, where public maritime traffic would be excluded. The Applicant has also proposed designating an Area to be Avoided with a radius of 2 NM (2.3 miles or 3.7 km) around the FSRU. Each of these zones would be marked on nautical charts and would serve as part of the Notice to Mariners to avoid this area.</p> <p>AM MT-3a. Patrol Safety Zone.</p> <p>AM MT-3d. Control Room Team Management Techniques.</p> <p>AM MT-3e. Broadcast of Navigational Warnings.</p> <p>MM PS-1e. Cargo tank fire survivability. The Applicant shall provide safety engineering, HAZIDs, HAZOPs, and QRA supporting</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>the detailed engineering design, including cases where cargo tank insulation is presumed to fail in the event of a fire.</p> <p>MM PS-1f. Structural Component Exposure to Temperature Extremes. The Applicant shall provide safety engineering, HAZIDs, HAZOPs, and QRA supporting the detailed engineering design, including cases where decking, hulls, and structural members are exposed to both cryogenic temperatures from spilled LNG and exposure to extreme heat from a fire, e.g., the Moss storage tanks would be designed with a steel outer shell to provide a barrier against excessive heat and fire in the event of an emergency in the regasification area, and to minimize impacts to multiple tanks.</p> <p>MM PS-1g. Pre- and Post-Operational HAZOPs. The Applicant shall conduct HAZOPs that address all LNG operations prior to beginning operation and after one year of operation. The results of these reviews shall be used to improve and refine operations practices and emergency response procedures. After the initial and first post-operational HAZOPs, additional HAZOPs shall be conducted every two years unless there has been a change in equipment or other significant change. The results of these reviews shall be reviewed as part of configuration management when any equipment, operational, or procedural changes have been undertaken that would necessitate conducting an additional HAZOP review for the new configuration. HAZOPs may be conducted by the Applicant or by a qualified third party, including participation by the CSLC.</p> <p>MM MT-3f. Live Radar and Visual Watch.</p>	
<p>PS-2: Potential Release of LNG due to High-Energy Marine Collision or International Attack</p> <p>A high-energy collision with the FSRU or an LNG carrier and another vessel or an intentional attack could cause a rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable vapor cloud that</p>	Class I	<p>AM PS-2a. AIS, Radar, and Marine VHF Radiotelephone. The Applicant would equip the LNG carriers and the FSRU with an Automatic Identification System (AIS) and with real-time radar and marine VHF radiotelephone capabilities.</p> <p>AM PS-1a. Applicant Engineering and Project Execution Process.</p>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
could extend beyond the 1,640-foot (500 m) radius safety zone around the FSRU, or could impact members of the boating public in the identified potential impact area, and impact boats traveling in the Traffic Separation Scheme.		AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU. AM PS-1c. Periodic Inspections and Surveys by Classification Societies. AM PS-1d. Designated Safety (Exclusion) Zone and Area to be Avoided. AM MT-3a. Patrol Safety Zone. AM MT-3b. LNG Carrier Monitoring by the FSRU. AM MT-3c. One LNG Carrier in Approach Route. AM MT-3d. Control Room Team Management Techniques. AM MT-3e. Broadcast of Navigational Warnings. MM PS-1e. Cargo Tank Fire Survivability. MM PS-1f. Structural Component Exposure to Temperature Extremes. MM PS-1g. Pre- and Post-Operational HAZOPs. MM MT-3f. Live Radar and Visual Watch. MM MT-3g. Information for Navigational Charts. MM MT-3h. Additional Patrol Vessel.	
Offshore Pipelines			
PS-3: Potential Release of Odorized Natural Gas due to Damage to Subsea Pipelines Fishing gear could become hung up on the pipeline and potentially damage one or both of the subsea pipelines. Similar damage may occur due to a seismic event or subsea landslide.	Class I	AM PS-3a. More Stringent Pipeline Design. The Applicant would design and install pipelines to meet seismic criteria to ensure that pipeline integrity is maintained during severe seismic events that might be expected to bend or bow the pipelines. MM PS-3b. Emergency Communication/Warnings. The Applicant shall institute emergency plans and procedures that require immediate notification of vessels in any offshore area, including hailing and Securite broadcasts, and immediate notification of local police and fire services whenever the monitoring system indicates that there might be a problem with subsea pipeline integrity. MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System. The Applicant shall identify any offshore or	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		onshore areas where the new transmission pipelines may be subject to accelerated corrosion due to stray electrical currents, and implement precautions and mitigation measures as recommended in a November 12, 2003 Federal OPS pipeline safety advisory (68 FR 64189). Cathodic protection systems shall be installed and made fully operational as soon as possible during pipeline construction. MM MT-1d. Securite Broadcasts. MM MT-3g. Information for Navigational Charts.	
Shore Crossing			
PS-4: Potential Release of Odorized Natural Gas due to Accidental Damage to Onshore Pipelines The potential exists for accidental or intentional damage to the onshore pipelines or valves carrying odorized natural gas. Damage, fires, and explosions may occur due to human error, equipment failure, natural phenomena (earthquake, landslide, etc.). This would result in the release of an odorized natural gas cloud at concentrations that are likely to be in the flammable range.	Class I	AM PS-4a. Class 3 Pipeline Design Criteria. The Applicant or its designated representative would construct all pipeline segments to meet the minimum design criteria for a USDOT Class 3 location, which would improve safety and reduce the need to reconstruct the pipeline segments as additional development and population densities increase along the pipeline corridor. MM PS-4b. Pipeline Integrity Management Program. The Applicant shall develop and implement a pipeline integrity management program, including confirming all potential High Consequence Areas (HCAs) (including identification of potential sites from "licensed" facility information [day care, nursing care, or similar facilities] available at the city and county level) and ensuring that the public education program is fully implemented before beginning pipeline operations. MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls. The Applicant shall install five approximately equally spaced sectionalizing valves with appropriately sited and sized blowdown stacks on the Center Road Pipeline. The Applicant shall install three approximately equally spaced sectionalizing valves with appropriately sited and sized blowdown stacks on the Line 225 Pipeline Loop. The number of valves includes the station valves at each end of these pipelines. All valves shall be equipped with either remote valve controls or automatic line break controls.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>MM PS-4d. Treat Shore Crossing as Pipeline HCA. The Applicant shall define any onshore public beach area, under which is located a pipeline (s) that is carrying natural gas, as an HCA.</p> <p>MM PS-4e. Automatic Monitoring for Flammable Gas. The Applicant shall design and install an automatic monitoring system (sniffer) in shore crossing HCAs.</p> <p>MM PS-4f. Emergency Communication and Warnings. The Applicant shall institute emergency plans and procedures that require immediate notification of vessels in any nearshore area, immediate notification of local police and fire services, and visual and audible alarms to alert members of the public in the area, e.g., warning horns and strobe lights located along the onshore pipeline HCA corridor whenever the monitoring system indicates that there might be a problem with the pipeline integrity in that area. The emergency plans shall be in compliance with OPS Advisory Bulletin ADB-05-03, which requires preplanning with other utilities for coordinated response to pipeline emergencies.</p> <p>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.</p>	
<p>PS-5: Increased Potential for Injury, Fatality, and Property Damage Due to Fire or Explosion in Areas with Less Robust Housing Construction and outdoor Activity.</p> <p>In the event of an accident, there is a greater likelihood of injury, fatality, and property damage near Center Road Pipeline MP 4.1, an HCA.</p>	Class I	<p>AM PS-4a. Class 3 Pipeline Design Criteria.</p> <p>MM PS-5a. Treat Manufactured Home Residential Community as an HCA. The Applicant shall treat as a High Consequence Area those areas where the potential impact radius includes part or all of a manufactured-home residential community, including outdoor gardens and areas with one or more normally occupied mobile homes or travel trailers used as temporary or semi-permanent housing, and outdoor gardens. The Applicant shall enact for these areas the pipeline safety requirements contained in 49 CFR Part 192 Subpart O.</p>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
MARINE TRAFFIC (Section 4.3)			
Offshore Construction			
<p>MT-1: <i>Temporary Increase in Maritime Traffic during FSRU Mooring, Offshore Pipeline Construction, and Shore Crossing Resulting in Increased Safety Risks</i></p> <p>Marine activities associated with site preparation, transportation, and installation of the mooring system, FSRU, and subsea pipelines could temporarily increase maritime traffic congestion and increase the risk of vessel collision.</p>	Class II	<p>AM MT-1a. Safety Vessel Warnings. A safety vessel would be stationed 3 to 5 NM (3.5 to 5.8 miles or 5.6 to 9.3 km) from the pipelaying barge in the direction of predominant traffic flow to warn vessels approaching construction that deviation from their course and speed is necessary.</p> <p>AM MT-1b. Automatic Identification System. The pipelaying barge and associated vessels would be equipped with an AIS.</p> <p>MM MT-1c. Notices to Mariners. The Applicant shall ensure that Notices to Mariners contain planned positions of vessels for the entire construction period, planned traffic lane closures, speed restrictions in the vicinity of vessels, and alternative routes and radio channels that Project vessels shall monitor and work. These notices shall include vessel names, if available, and shall mention the presence of the safety vessel(s) identified in MM MT-1e. The Applicant shall submit unforeseen short-notice changes to the USCG for dissemination as a Broadcast Notice to Mariners and shall include such changes in the Securite broadcasts identified in MM MT-1d.</p> <p>MM MT-1d. Securite Broadcasts. The Applicant shall ensure that a Project vessel in the construction area makes Securite broadcasts on VHF-FM at half-hour intervals, informing mariners about the current construction location, any lane restrictions, and preferred speed and standoff distances from the Project vessels and trailing pipeline. The vessel could be the safety vessel identified in MM MT-1e.</p> <p>MM MT-1e. Safety Vessel. The Applicant shall ensure that the safety vessel be present at all times during construction, be equipped with radar and marine VHF radio, be of sufficient size and type, and have a sufficiently trained crew to respond to emergencies. This vessel's captain shall instruct intercepted</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>vessels as to the location of construction vessels and the standoff distances from vessels and the pipeline to ensure that the intercepted vessel safely avoids the construction zone. This vessel shall be of sufficient speed to intercept vessels failing to alter course or answer radio hails. Alternatively, more than one vessel of this type shall be used and stationed in various positions around the construction site to ensure full coverage of the construction area.</p> <p>MM MT-1f. Guard Boats. The Applicant shall station two guard boats, in addition to the safety vessel identified in MM MT-1e, on watch while construction takes place in waters less than 656 feet (200 m) deep where trawling occurs to warn or intercept commercial fishing vessels before they reach the construction area. These smaller guard boats shall be stationed on either side of the construction vessels and intercept the faster recreational vessels that may not have marine radios. The guard boats shall be equipped with spotlights for identification of non-answering vessels at night and loud hailer or bullhorns to warn these vessels about the construction area.</p> <p>MM MT-1g. Construction Schedule Signs. The Applicant shall post signs at local marinas and ports to inform the public of the nearshore construction schedule at least one month prior to the first day of construction. One week prior to construction the Applicant shall replace any signs that are no longer present.</p>	
<p>MT-2: <i>Long-Term Increase in Maritime Traffic during Offshore Operations</i></p> <p>LNG carriers, tugs, and attending vessels transiting to and from the FSRU, could increase maritime traffic congestion during Project operations.</p>	Class II	<p>AM MT-2a. Provisions for Delays. Project operational vessels (including LNG carriers) would not use anchorages except possibly in emergency situations. If there is a delay in docking, LNG carriers would slow their speed to arrive at a suitable time or stop or drift between 100 and 200 NM (115 and 230 miles or 185 and 370 km) offshore.</p> <p>AM MT-2b. Established Routes to and from Port Hueneme. Vessels would use the routes depicted on Figure 4.3-3 to travel to and from Port Hueneme.</p>	

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		<p>AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors. The Applicant would abide by the corridors that direct traffic into specified patterns within 30 fathoms (180 feet) of shore established by JOFLO. Although JOFLO is not a governmental agency and has no jurisdiction to set marine traffic corridors, the Applicant would respect its established corridors.</p> <p>MM MT-2d. Incorporation of Procedures for Delays. To formalize AM MT-2a, the Applicant shall incorporate procedures that mandate early notification of possible delays into the facility operations manual for LNG carriers so that a carrier might reduce transit speed in order to arrive at a later time and shall contact the incoming ship once it is determined that a delay may occur to instruct them to stay at least 100 NM (115 miles or 158 km) offshore.</p>	
<p>MT-3: Long-Term Increase in Safety Hazards due to the Presence of the FSRU and LNG Carriers</p> <p>The FSRU mooring location would be situated approximately 2 NM (2.3 miles or 3.7 km) from the Southbound Coastwise Traffic Lane of the Santa Barbara Channel Traffic Separation Scheme, which has relatively high levels of maritime traffic. In addition, vessels entering/leaving Port Hueneme or other local marina could pass nearby; thus, maritime traffic could be substantially increased with Project operations and the risk of vessel collision could be increased.</p>	Class II	<p>AM MT-3a. Patrol Safety Zone. Two tugboats on standby duty would patrol the Cabrillo Port's designated safety zone, except during docking and undocking operations. Dedicated personnel aboard the FSRU would monitor marine traffic.</p> <p>AM MT-3b. LNG Carrier Monitoring by the FSRU. LNG carriers inbound and outbound would be monitored by the FSRU's own marine traffic management system. Specific required reporting and traffic information exchange protocols would be implemented. Appropriate adjustments to scheduling of LNG carriers would be in place to avoid routine collision possibilities.</p> <p>AM MT-3c. One LNG Carrier in Approach Route. Only one LNG carrier would be permitted to transit the approach route at any given time (see Figure 4.3-2). Minimum distances between LNG carriers when enroute on the LNG carrier approach route would be prescribed.</p>	

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		<p>AM MT-3d. Control Room Team Management. The Applicant would ensure that all members of the control room team are aware of possible dangers of upcoming operations and would inform all crew members that it is their responsibility to bring indication of danger to the attention of higher authorities.</p> <p>AM MT-3e. Broadcast of Navigational Warnings. The FSRU would broadcast navigational warnings of arriving and departing LNG carriers on radio, TOR, NAVTEX, and Sat-C.</p> <p>MM MT-3f. Live Radar and Visual Watch. The Applicant shall ensure that an officer provide live radar and visual watch in order to detect and identify approaching vessels and note approaching aircraft at all times. The watchstanders shall provide a full-time radio watch, which shall monitor VHF-FM frequencies commonly used for emergency and normal ship-to-ship communications, and contact approaching vessels to inform them of the FSRU's location, intentions, and the nature of safety and/or security zones in effect. Guidance for these FSRU positions shall be included in the facility operations and security manuals.</p> <p>MM MT-3g. Information for Navigational Charts. The Applicant shall ensure that all required information is provided to the USCG and other agencies, as necessary, to place the FSRU location, safety zone information, and subsea pipeline locations and warnings on navigational charts. This shall include a Notice to Mariners for chart correction and inclusion on the next edition of applicable navigation charts. These data shall be provided sufficiently early to allow these changes to be made on charts when FSRU mooring occurs. The Applicant shall coordinate with the USCG to identify acceptable deadlines currently in place.</p> <p>MM MT-3h. Additional Patrol Vessel. The Applicant shall have a vessel patrol the safety zone while the tugs are engaged in docking an LNG carrier.</p>	

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
MT-4: <i>FSRU or LNG Carrier Accident Impact on Marine Traffic</i> An incident at the FSRU or on an LNG carrier could adversely affect marine traffic	Class II	AM PS-2a. Radar, Marine VHF, and Radiotelephone. AM MT-3a. Patrol Safety Zone. AM MT-3b. LNG Carrier monitoring by the FSRU. AM MT-3c. One LNG Carrier Approach Route. MM PS-3b. Emergency Communications/Warnings. MM MT-3f. Live Radar and Visual Watch.	
MT-5: <i>Temporary Interference with Operations in the Point Mugu Sea Range or the SOCAL Range Complex during Offshore Construction</i> Marine activities associated with site preparation, transportation, and installation of the mooring system, FSRU, or subsea pipelines could temporarily burden maritime traffic tracking systems or make clearing of some warning areas impossible; thus, temporary disruption of operations in the Point Mugu Sea Range or the SOCAL Range Complex could occur.	Class II	MM MT-5a. Avoid Point Mugu Sea Range. The Applicant shall ensure that Project-related vessels, unless such vessels are related to pipeline construction, do not intrude into the waters in the Point Mugu Sea Range. When construction must take place in a Point Mugu Sea Range warning area, such as where the subsea pipelines cross the range, the Applicant shall give notice of at least one month, and preferably six months, to the U.S. Navy to allow for adequate coordination. MM MT-5b. Daily Safety Briefs. The Applicant shall ensure that daily safety briefs aboard all Project vessels include instructions to avoid use of Point Mugu Sea Range waters. MM MT-5c. Daily Coordination with the U.S. Navy. The Applicant shall coordinate daily (or at an interval that the U.S. Navy deems sufficient) with the U.S. Navy to ensure that no conflicts exist between Navy operations and Project construction when Project vessels would be expected to be in any warning area. If a Navy warning area needs to be used by construction vessels, construction shall be postponed until the situation is resolved to the satisfaction of Project management and the U.S. Navy. Coordination with the U.S. Navy shall be completed at least one month prior to the date that construction begins. MM MT-5d. Monitor U.S. Navy Securite Broadcasts. The Applicant shall ensure that Project vessels monitor all U.S. Navy Securite warning broadcasts on VHF-FM. This would likely require switching from normally monitored frequencies, when prompted by a preliminary broadcast by the U.S. Navy, for additional information.	

Table ES-5 Summary of Impacts and Mitigation Measures

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		Instructions to do so shall be included in daily safety briefs. Conflicts, actual or perceived, shall be addressed immediately by the Project person-in-charge on site, or by individual Project vessel captains via VHF communications with the U.S. Navy.	
MT-6: Long-Term Interference with Operations in the Point Mugu Sea Range and the SOCAL Range Complex Marine activities associated with Project operations could burden maritime traffic tracking systems or could make clearing of some warning areas impossible; thus disruption of operations in the Point Mugu Sea Range or the SOCAL Range Complex could occur.	Class II	MM MT-6a. Follow U.S. Navy Securite Broadcasts. MM MT-6b. LNG Carrier Schedules. MM MT-6c. Coordinate with the U.S. Navy.	
AESTHETICS [AES] (Section 4.4)			
Offshore Construction			
AES-1: Alter Ocean Views from Onshore and Channel Islands Viewpoints The FSRU in an unobstructed viewshed could alter views from beach areas, residences near sea level, residences at higher elevations, and from hiking trails at higher elevations.	Class III	None.	Less than significant
Onshore Construction			
AES-2: Alter Nighttime Ocean Views Night lighting on FSRU could be visible to residents, thereby altering night vistas.	Class II	MM BioMar-3a. Construction/Operation Lighting Control.	Less than significant
AES-3: Alter Views for Recreational Boaters The FSRU would change the visual character of the ocean view for recreational boaters.	Class I	None.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
AES-4: <i>Alter Offshore Views from an Eligible State Scenic Highway</i> The FSRU would be visible to travelers on an eligible State Scenic Highway.	Class III	None.	Less than significant
AES-5: <i>Alter Ocean Views During Construction</i> Night lighting during offshore construction could be visible from the shore and to residents living in the foothills and higher elevation area in Malibu, thereby temporarily altering the nighttime viewshed.	Class II	MM BioMar-3a. Construction/Operation Lighting Control.	Less than significant
AES-6: <i>Substantial Damage to Onshore Scenic Resources Along a State Scenic Highway</i> Construction of the onshore pipelines could alter the scenic quality of a highway eligible for the State Scenic Highway System.	Class III	MM GEO-1b. Backfilling, Compaction, and Grading.	Less than significant
AGRICULTURE AND SOILS (Section 4.5)			
AGR-1: <i>Temporary Loss of Agricultural Land</i> Construction activities could temporarily cause a loss of agricultural land, crops, or crop production.	Class II	AM AGR-1a. Compensation for Temporary and Permanent Loss of Agricultural Land, Crop Loss, Future Loss of Production, and Other Negative Impacts. In compliance with California Government Code § 7267 et seq., the Applicant or its designated representative would make every reasonable effort to acquire easements (temporary and permanent) expeditiously by negotiation. The easement rights would be appraised before the initiation of negotiations, and the property owner, or the property owner's designated representative, would be given an opportunity to accompany the appraiser during his or his inspection of the property. SoCalGas would establish an amount which it believes to be just compensations for the easement rights based upon the appraisal. SoCalGas would provide the property owner with a written statement of, and summary of the basis for, the amount it	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>established as just compensation, which amount would not be less than the appraised value of the easement rights. The appraisal process would consider the value of the easement rights being acquired, and where applicable, crop loss, future loss of production, and any other negative impacts that SoCalGas' acquisition and use of the easement areas would have upon agricultural operations.</p> <p>MM AGR-1b. Coordinate Pipeline Installation with Farmers. The Applicant or its designated representative shall let the farmer decide if the farmer will remove seed/crops or whether the Applicant's contractor will remove the seed/crops.</p> <p>MM AGR-1c. Minimize Orchard Tree Removal. Recognizing that no trees can grow on the permanent pipeline, the Applicant or its designated representative shall remove, box, maintain, and replant small orchard trees in the area between the temporary construction easement (TCE) and the permanent right-of-way (ROW). The Applicant or its designated representative shall minimize the number of mature trees removed.</p> <p>MM AGR-1d. Post-Construction Restoration Measures. The Applicant or its designated representative shall protect all substructures, such as drain tiles, during construction and replace any substructures if damaged. The Applicant or its designated representative shall restore the grade of the TCE to match the surrounding field for drainage or compensate the farmer if the farmer chooses to have a contractor perform precision grading.</p>	
<p>AGR-2: Permanent Conversion of Agricultural Land to Non-Agricultural Use Operational activities could cause a loss of agricultural land, crops, or crop production. Construction of permanent facilities could cause a permanent loss of agricultural land, crops, or crop production. Agricultural land that is preserved under the Williamson Act could be permanently converted from agricultural land to</p>	Class I	None.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
non-agricultural land. Prime farmland or farmland of Statewide Importance could be converted to non-agricultural uses.			
AGR-3: Topsoil Loss, Mixing, and/or Compaction Construction activities could result in topsoil and subsoil mixing, soil compaction, and/or introduction of weed/invasive species, thereby reducing agricultural productivity.	Class II	AM TerrBio-4a. Weed Management Plan. MM AGR-3a. Topsoil Salvage and Replacement. The Applicant or its designated representative shall ensure that the upper 12 inches (0.3 m) of topsoil (or less depending on the existing depth of the topsoil) is salvaged, segregated from the rest of the soil, and replaced on top of the disturbed areas and replaced wherever the pipeline is trenched. MM AGR-3b. Landowner Compensation for Soil Productivity Losses. Prior to construction, the Applicant or its designated representative shall negotiate with landowners regarding measures to ensure that soil productivity is maintained and that the criteria for determining loss of soil productivity and the terms for compensation for such loss are determined.	Less than significant
AGR-4: Dust Deposition Dust generated during construction could be deposited on adjacent agricultural lands with planted crops, temporarily reducing productivity.	Class II	MM AIR-2b. Construction Fugitive Dust Plan. MM AGR-4a. Dust Suppression Water Quality. For dust suppression, the Applicant or its designated representative shall use potable water sources or water sources approved for discharge near agricultural uses. Water used on agricultural fields shall not be treated with chemicals such that it could adversely affect agricultural fields.	Less than significant
AGR-5: Loss of Tree Rows Loss of tree rows could reduce agricultural productivity.	Class II	MM TerrBio-2g. Tree Avoidance and Replacement.	Less than significant
AGR-6: Impacts from a Leak or Fire Associated with the Natural Gas Transmission Line If the natural gas transmission line leaked and/or was ignited and the resulting fire could cause the loss of crops or the contamination of	Class II	AM PS-3a. More Stringent Pipeline Design. AM PS-4a. Class 3 Pipeline Design Criteria. MM AGR-6a. Restoration After a Natural Gas Transmission Line Accident. The Applicant or its designated representative shall restore the area that was either contaminated or burned as a result of a breach in the natural gas transmission line.	Less than Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
the soil in the vicinity of the leak or fire.		MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System. MM PS-4b. Pipeline Integrity Management Program. MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls.	
AIR QUALITY [AQ] (Section 4.6)			
Offshore			
AIR-1: Net Emission Increases of Criteria Pollutants from Construction Activities in Designated Nonattainment Areas Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for ozone precursors, NO _x and ROC, and CO.	Class I	MM AIR-1a. Construction Emissions Mitigation Plan. The Applicant shall prepare a Construction Emissions Mitigation Plan and work with the VCAPCD and the SCAQMD to implement specific measures contained in the plan. The plan shall outline specific measures to mitigate potential impacts associated with construction-related emissions of criteria air pollutants and toxic air contaminants. At a minimum, the plan shall include the following commitments: <ul style="list-style-type: none"> • Reduce emissions of diesel particulate matter and other air pollutants by using particle traps and other technological or operational methods; • Ensure diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use; • Prohibit engine tampering to increase horsepower; • Locate engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals); • Require low sulfur diesel fuel (<15 ppm by weight); • Reduce construction-related trips of workers and equipment, including trucks. • Require that leased and new vehicles and equipment be less than 10 years old and operate using “clean energy,” e.g., a minimum of 75 percent of the equipment's total horsepower; 	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<ul style="list-style-type: none"> • Use engine types such as electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations; and • To the extent possible, use equipment fitted with engines compliant with USEPA Tier 2, 3 or 4 standards for off-road engines. 	
<p>AIR-2: Violations of Ambient Air Quality Standards Caused by Particulate Emissions from Onshore Construction Activities</p> <p>Onshore Project construction activities would generate PM₁₀ and PM_{2.5} emissions that could cause or contribute to existing or projected violations of NAAQS and/or State Ambient Air Quality Standards.</p>	Class I	<p>AM AIR-2a. Fugitive Dust Controls. The Applicant or its designated representative would provide for the following control measures:</p> <ul style="list-style-type: none"> • Excavation and moist spoils would be watered down; • Spoil piles that remain more than a few weeks would be covered with tarps; • Water trucks would be used for dust suppression; and • Disturbed areas not covered with surface structures, such as buildings and pavements, would be stabilized following construction activities. This stabilization may involve planting these areas with suitable vegetation to minimize future on-site soil loss and off-site sedimentation. <p>MM AIR-2b. Construction Fugitive Dust Plan. The Applicant or its designated representative shall be required to develop, and submit for approval, a Construction Fugitive Dust Control Plan prior to the commencement of construction activities. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:</p> <ul style="list-style-type: none"> • Describing each active operation(s) that may result in the generation of fugitive dust; • Identifying all sources of fugitive dust, e.g., earth moving, storage piles, vehicular traffic; and • Describing the control measures to be applied to each of the sources of dust emissions identified above. The descriptions shall be sufficiently detailed to demonstrate that the best available control measure(s) required by the SCAQMD and the 	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<p>VCAQMD for linear projects will be used and/or installed during all periods of active operations.</p> <p>At a minimum, the control measures specified in the Construction Emissions Reduction Plan shall conform with all applicable requirements of SCAQMD Rule 403 and with the fugitive dust mitigation measures described in section 7.4.1 of the Ventura County Air Quality Assessment Guidelines (2003).</p> <p>Due to potential exceedances of applicable air quality standards, this plan shall also identify specific methodologies for taking “real-time” measurements of PM₁₀ and PM_{2.5} ambient concentrations at locations along the boundary of the proposed construction areas. The plan shall include a description of “action levels” for these measurements and the corresponding steps to be taken, e.g., increase watering to reduce ambient particulate concentrations. The specified monitoring methodologies included in this plan must meet the approval of the VCAPCD and the SCAQMD.</p> <p>The Applicant or its designated representative shall obtain prior approval from the SCAQMD or the VCAPCD prior to any deviations from fugitive dust control measures specified in the Construction Fugitive Dust Plan. A justification statement used to explain the technical or safety reason(s) that preclude the use of required fugitive dust control measure(s) shall be submitted to the appropriate agency for review.</p> <p>MM AIR-1a. Construction Emissions Reduction Plan.</p>	
<p>AIR-3: <i>Violations of Ambient Air Quality Standards, Exposure of the Public to Substantial Pollutant Concentrations, and/or Creation of Objectionable Odors Caused by an Accidental LNG Spill or Pipeline Rupture</i></p> <p>An LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of</p>	Class I	<p>AM PS-3a. More Stringent Pipeline Design.</p> <p>AM PS-4a. Class 3 Pipeline Design Criteria.</p> <p>MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.</p> <p>MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls.</p> <p>MM PS-4d. Treat Shore Crossing as Pipeline HCA.</p>	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
criteria pollutants in excess of air quality standards, expose sensitive receptors and the general public to substantial concentrations of toxic air contaminants, and/or create objectionable odors.		MM PS-4e. Automatic Monitoring for Flammable Gas. MM PS-4f. Emergency Communication and Warnings. MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence Area.	
AIR-4: <i>Emissions of Ozone Precursors from the FSRU</i> Emissions of NO _x and ROC generated from FSRU equipment could contribute to ambient ozone impacts in the areas downwind of the Project.	Class II	AM AIR-4a. Emission Reduction Programs. As part of air permit-to-construct application procedures, the Applicant has committed to the USEPA, the CARB, and local air districts to identify a suitable emission reduction program (in addition to reductions inherent to the Project) that would reduce annual emissions of NO _x by an amount up to the FSRU's annual NO _x emissions.	Less than significant
AIR-5: <i>Emissions of Ozone Precursors from Project Vessels Operating in California Coastal Waters.</i> Emissions of NO _x and ROC generated from LNG carriers, tugboats, and the crew/supply boat operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project.	Class I	AM AIR-5a. Natural Gas Only on Project Vessels. The Applicant has proposed to use natural gas as the primary fuel in the main and auxiliary engines on the LNG carriers, tug supply boats, and crew boat whenever these vessels are berthed at the FSRU or operating within 25 miles of the coast of California. A small amount of California diesel would be used simultaneously as a pilot fuel in LNG carrier, tugboat and crew/supply boat engines resulting in a fuel mixture with a natural gas to diesel ratio of approximately 99:1. AM AIR-5b. Reduced Vessel Traffic Between the FSRU and Port Hueneme. The Applicant has proposed to reduce, by more than half, the number of weekly and annual transits made by the crew boat/supply boat to and from Port Hueneme and the FSRU from the original estimates in the October 2004 Draft EIS/EIR. MM AIR-5c. Consultation with CARB to Identify Emission Reduction Opportunities. The Applicant shall continue to consult with the CARB in an effort to identify and implement additional emission reduction opportunities in Ventura County and/or the South Coast Air Basin, such as unfunded Carl Moyer projects, that would mitigate emissions generated from Project vessels operating in Federal waters.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
AIR-6: <i>Emissions of Ozone Precursors from Project Construction Activities in Federal Waters</i> Project construction activities in Federal waters would generate emissions of NO _x and ROCs that could contribute to ambient ozone impacts in the areas located downwind of the Project.	Class III	MM AIR-1a. Construction Emissions Reduction Plan.	Less than significant
AIR-7: <i>Temporary Ambient Air Quality Impacts Caused by Air Pollutant Emissions from Onshore and Offshore Construction Activities</i> Air pollutants emitted during onshore and offshore Project construction activities would cause temporary increases in ambient pollutant concentrations.	Class III	MM AIR-1a. Construction Emissions Reduction Plan.	Less than significant
AIR-8: <i>Ambient Air Quality Impacts Caused by Air Pollutant Emissions from the FSRU and Project Vessels</i> Air pollutants emitted from FSRU equipment and Project vessels associated with operations would cause increases in ambient pollutant concentrations.	Class III	None.	Less than significant
MARINE BIOLOGY (Section 4.7)			
BioMar-1: <i>Burial of Sessile Marine Biota</i> Construction activities associated with pipeline and mooring installation could temporarily disturb soft substrate sediments and could bury or crush sessile marine biota such as benthic invertebrates.	Class III	None.	Less than significant
BioMar-2: <i>Temporary Avoidance of the Area Due to Increased Turbidity from Construction Activities Offshore or Accidental HDB Release of Drilling Fluids</i>	Class II	MM WAT-3a. Drilling Fluid Release Monitoring Plan.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
A release of drilling fluids and bentonite into the subtidal environment during HDB could temporarily increase turbidity. Increases in turbidity at the offshore exit point could cause fish to avoid this area.			
<p>BioMar-3: <i>Temporary or Permanent Alteration or Disturbance of Marine Biota Behavior or Sensitive Habitats</i></p> <p>Construction and/or operational activities could alter EFH or sensitive habitats (beach spawning areas or hard bottom substrate,) resulting in cessation or reduction of feeding or reproduction, area avoidance, or changes in migration patterns.</p>	Class II	<p>AM BioMar-3a. Construction/Operations Lighting Control. A plan would be developed in consultation with a marine bird expert and submitted for approval by the USCG and the CSLC at least 60 days prior to construction.</p> <p>AM NOI-4a. Construction Noise Reduction Measures.</p> <p>MM BioMar-3b. Monitoring. If intertidal beach work occurs between February and September, the Applicant shall ensure that a qualified biologist will monitor the beach within 100 feet (30.5 m) of the route during the two weeks prior to installation. If a grunion spawning event occurs during the two weeks prior to construction activities, installation will be delayed until the grunion eggs have hatched (approximately two weeks). A qualified biologist shall determine the day in which construction can begin again after the spawning event.</p> <p>MM BioMar-3c. Avoidance. Although recent surveys of the Project site have not identified any hard bottom areas, the Applicant shall ensure that any unexpected hard bottom habitats encountered during construction will be avoided.</p> <p>MM NOI-1a. Efficient Equipment Usage.</p>	Less than significant
<p>BioMar-4: <i>Construction or Operation Vessels Act as an Attractive Nuisance or Disrupt Marine Mammal Behavior or Migrations</i></p> <p>Construction or operational activities could alter sensitive habitats such that marine mammal reproduction could be reduced, prey species could be eliminated, or animals might avoid an area.</p>	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
BioMar-5: <i>Noise Disrupting Marine Mammal Behavior</i> Noise from construction and operation vessels or equipment could disrupt migrations; interfere with or mask communications, prey and predator detection, and/or navigation; cause adverse behavioral changes; or result in temporary or permanent hearing loss.	Class II	AM BioMar-9a. Avoid Offshore Construction During Gray Whale Migration Season. AM BioMar-9b. Marine Mammal Monitoring. MM BioMar-5a. Noise Reduction Design. The Applicant shall work with marine architects, acoustic experts and mechanical engineers and the USCG, among others, to design the FSRU and its equipment to reduce, to the maximum extent feasible, the output of cumulative noise from the facility. MM BioMar-5b. Acoustic Monitoring Plan. The Applicant shall prepare an acoustic monitoring plan to obtain site-specific baseline data and empirical data prior to and during LNG operations. MM BioMar-5c. Helicopter Altitude. The Applicant shall ensure that helicopters maintain a flight altitude of at least 2,500 feet (762 m), except during takeoff and landing. MM NOI-1a. Efficient Equipment Usage.	Less than significant
BioMar-6: <i>Mortality and Morbidity of Marine Biota from Spills</i> Although rare, an accidental release of a significant amount of oil or fuel during construction or operation, or LNG spills or a natural gas leak from subsea pipelines, could cause morbidity or mortality of marine biota, including fish, invertebrates, sea birds, and sea turtles, through direct contact or ingestion of the material.	Class I	AM PS-1a. Applicant Engineering and Project Execution Process. AM PS-1b. Certification and a Safety Management Certificate for the FSRU. AM PS-1c. Periodic Inspections and Surveys by Classification Societies. AM PS-1d. Designated Safety (Exclusion) Zone and Area to be Avoided. AM MT-3a. Patrol Safety Zone. MM PS-1e. Cargo Tank Fire Survivability. MM PS-1f. Structural Component Exposure to Temperature Extremes. MM PS-1g. Pre- and Post-Operational HAZOPs.	Significant
BioMar-7: <i>Discharge of Bilge Water, Gray Water, and Deck Runoff</i> An accidental discharge of untreated bilge water, gray water, or deck runoff from the	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
FSRU or from the LNG tankers could result in the release of contaminants into the marine environment. A release of contaminants could cause mortality or morbidity of fish and/or benthic communities.			
BioMar-8: <i>Release of LNG, Natural Gas, Fuel, or Oil Causes Injury or Mortality of Marine Mammals</i> A release of LNG, natural gas, fuel, or oil could cause injury or mortality of marine mammals through direct contact or ingestion of the material.	Class I	AM PS-1a. Applicant Engineering and Project Execution Process. AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU. AM PS-1c. Periodic Inspections and Surveys by Classification Societies. AM PS-1d. Designated Safety (Exclusion) Zone and Area to be Avoided. AM MT-3a. Patrol Safety Zone. MM PS-1e. Cargo Tank Fire Survivability. MM PS-1f. Structural Component Exposure to Temperature Extremes. MM PS-1g. Pre- and Post-Operational HAZOPs. MM MT-3f. Live Radar and Visual Watch.	Significant
BioMar-9: <i>Collision between Project Vessels and Marine Mammals or Sea Turtles</i> Construction and operational vessels could collide with marine mammals or sea turtles resting on the ocean surface, resulting in injury or mortality.	Class III	AM BioMar-9a. Avoid Offshore Construction During Gray Whale Migration Season. The Applicant would conduct offshore construction activities outside the gray whale migration season (June 1-November 30). AM BioMar-9b. Marine Mammal Monitoring. All construction vessels would carry one qualified marine monitor to provide a 360-degree view and watch for and alert vessel crews of the presence of marine mammals during construction activities.	Less than significant
BioMar-10: <i>Entanglement of Marine Mammals and Turtles</i> Marine mammals or sea turtles could become entangled in construction or operation equipment, causing injury or mortality.	Class II	AM BioMar-9b. Marine Mammal Monitoring. MM BioMar 10a. Deployment of Potentially Entangling Material. The Applicant shall ensure that the vessel operator deploys any material that has the potential for entangling marine mammals or sea turtles only for as long as necessary to perform its task, and	Less than significant

Table ES-5 Summary of Impacts and Mitigation Measures

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		then immediately removes such material from the Project area. MM BioMar-10b. Notification. In the unlikely event that a marine mammal or sea turtle is entangled, the Applicant shall require the vessel operator to immediately notify the stranding coordinator at NOAA Fisheries in Long Beach and the Santa Barbara Marine Mammal Center so that a rescue effort may be initiated.	
BioMar-11: <i>Discharge of Ballast Water Potentially Containing Exotic Species</i> A release of ballast water containing exotic species could introduce exotic species that directly compete with native organisms, affecting the viability of native species.	Class III	None.	Less than significant
BioMar-12: <i>Increase/Decrease in Fish Abundance or Commercially Important Benthic Species</i> Commercially important fish species could potentially avoid the Project site due to increased human activity and Project-related noise. Additionally, fish and other benthic species could be attracted to the low relief habitat provided by the subsea pipeline, decreasing abundance in other heavily fished areas.	Class III	None.	Less than significant
TERRESTRIAL BIOLOGY (Section 4.8)			
TerrBio-1: <i>Temporary Increase in Sedimentation</i> Construction activities could cause increased sedimentation and soil erosion, and expose contaminated soils during trenching activities.	Class II	AM TerrBio-1a. Erosion Control. To minimize sedimentation, the Applicant would implement measures during construction. MM TerrBio-1b. Spill Containment/Management. The Applicant shall implement measures to control and manage spills. MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<p>TerrBio-2: <i>Temporary or Permanent Impacts Regarding Construction, Operation, and Maintenance Effects on Rare and Special Status Plants</i></p> <p>Upland vegetation removal during onshore pipeline construction, maintenance, and repair activities could result in the loss of special status plants.</p>	Class II	<p>AM TerrBio-2a. Pre-Construction Plant Surveys. The Applicant would conduct additional pre-construction surveys according to appropriate survey protocols for special status species, and any federally listed species specified by the USFWS or the CDFG.</p> <p>AM TerrBio-2b. Biological Resources Mitigation Implementation and Monitoring Plan. Additional surveys would be conducted within any areas potentially impacted by Project activities during construction or operation where special status species potentially occur.</p> <p>AM TerrBio-2c. Employee Environmental Awareness Program (EEAP). The Applicant would conduct an employee awareness program before groundbreaking to explain the applicable endangered species laws and any endangered species concerns to contractors working in the area.</p> <p>AM TerrBio-2d. Biological Monitoring. The Applicant would use a qualified Biological Monitor to conduct and supervise the EEAP program and to conduct on-site biological monitoring.</p> <p>AM TerrBio-2e. Confine Activity to Identified Right-of-Way. The Applicant would limit all proposed roadway construction to the existing roadway surface wherever special status plant species or habitats occur adjacent to the roadway.</p> <p>MM TerrBio-2f. Riparian Avoidance and Restoration. The Applicant shall avoid, minimize, and compensate for impacts on riparian habitat during construction due to trenching or open cut crossings of waters of the U.S.</p> <p>MM TerrBio-2g. Tree Avoidance and Replacement. The Applicant shall, to the extent possible, avoid, minimize, and compensate for impacts on trees.</p>	Less than significant
<p>TerrBio-3: <i>Temporary or Permanent Changes to Wetlands or Waters of the U.S. during Construction</i></p> <p>Construction (such as trenching) in wetlands or</p>	Class II	<p>MM TerrBio-3a. Avoid, Minimize, or Reduce Impacts on Wetlands. Impacts on wetlands or waters of the U.S. shall be avoided, minimized, or reduced.</p> <p>MM TerrBio-2f. Riparian Avoidance and Restoration.</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
waters of the U.S. could remove vegetation, disrupt the hydrology of the wetlands within and adjacent to the construction area, or alter the habitat for special status plant species.			
TerrBio-4: <i>Permanent Impact Caused by Noxious Weed Invasion</i> Construction-related disturbance could provide an opportunity and seedbed for the invasion of weeds, which could adversely affect special status plant species or habitats and upland vegetation.	Class III	AM TerrBio-4a. Weed Management. The Applicant would implement measures to prevent the spread of invasive weeds.	Less than significant
TerrBio-5: <i>Direct Permanent Impact on Wildlife Mortality</i> Construction activities associated with pipeline installation, staging areas, HDD or HDB locations, and access roads could cause the mortality of small mammals, reptiles, and other less-mobile species.	Class II	AM TerrBio-2c. Employee Environmental Awareness Program (EEAP). AM TerrBio-2d. Biological Monitoring. MM TerrBio-5a. Pre-Construction Wildlife Surveys. To minimize the potential for causing mortality of local wildlife, the Applicant shall engage a qualified wildlife biologist to conduct additional pre-construction surveys in advance of any vegetation clearing, or excavation or other activity that causes disturbance to surface soils.	Less than significant
CULTURAL RESOURCES (Section 4.9)			
CULT-1: <i>Marine Archaeological Sites and Artifacts</i> The Project could violate cultural resource standards or cause an adverse change in archaeologically significant resources in offshore Project areas.	Class III	AM CULT-1a. Marine Archaeological Surveys. Additional marine archaeological surveys would be performed to confirm the location of and gather further information on the submerged objects determined to be subject to potential impact from the Project. Shipwrecks or other underwater cultural resources identified as culturally significant would be avoided. Pipelaying barges would use dynamic positioning rather than anchoring at locations along the route to avoid impacts on potential cultural resources.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
CULT-2: Native American Values The Project could violate cultural resource standards by impacting resources that are of value to Native American culture and heritage, particularly descendents of the Ventura Chumash.	Class III	<p>AM CULT-2a. Site Avoidance. The Applicant would avoid identified sites to the maximum feasible extent and adhere to State of California burial remains legislation and the Native American Graves Protection and Repatriation Act as applicable.</p> <p>AM CULT-2b. Native American Values. The Applicant would incorporate the following measures to avoid impacts on Native American values:</p> <ul style="list-style-type: none"> • Native American monitoring would be included in Project-related activities that result in disturbance of surface and subsurface components of archaeological sites; • Artifacts recovered from archaeological sites would be curated at a qualified museum or historical facility that allows access to Native Americans; • Procedures specified in CEQA 15064.5(e) and Health and Safety Code § 7050.5 and Public Resources Code § 5097.98 would be implemented if human remains are discovered in the Project area; and • Oak trees and other plants and animals of local Native American concern would be avoided, and impacts to native plants would be minimized by allowing collection of herbs before construction and by relocating and replanting grasses. If such resources are unavoidable during Project construction or maintenance, further investigations in the form of complete documentation would be implemented. All such investigations would include Native American participation where mandated by Federal, State, and local law. <p>AM CULT-1a. Marine Archeological Surveys. AM CULT-3a. Archaeological Monitoring. AM CULT-3b. Unanticipated Discovery Plan. AM CULT-3c. Pre-Construction Pedestrian Survey.</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
CULT-3: Terrestrial Historic or Archaeological Resources The Project could violate cultural resource standards, cause an adverse change in the significance of an historic or archaeological resource, or disturb human remains in onshore Project areas.	Class III	<p>AM CULT-3a. Archaeological Monitoring. A qualified archaeologist would monitor all construction within 328 feet (100 m) of archaeological sites and areas with high potential for the occurrence of sites buried under alluvium, including the shoreline crossing. If sites are identified during the monitoring phase of construction, the archaeologist would be empowered to stop all construction activities in the vicinity of the find and evaluate the resource. Such evaluation would require a Phase 2 subsurface testing and evaluation program. If remains prove to be significant and site avoidance cannot be implemented through Project redesign, a Phase 3 data recovery program would be implemented to mitigate impacts.</p> <p>AM CULT-3b. Unanticipated Discoveries Plan. To ensure compliance with mitigation measures, a cultural resources management plan would be developed pursuant to all relevant Federal, State, and local cultural resources guidelines and criteria, including CEQA Guidelines § 15064.5 (e). The plan includes an overview of the regulations that apply in the event of an unanticipated discovery, and identifies specific steps to be undertaken for treatment or discovery of remains. The plan covers:</p> <ul style="list-style-type: none"> • Authority to halt construction; • Procedures when skeletal remains are found; • Protection while awaiting recommendations from most likely descendants; • Treatment as recommended by most likely descendants; • Reporting; and • Curation of archaeological material not associated with human remains. <p>AM CULT-3c. Pre-Construction Pedestrian Survey. The Applicant would employ a qualified archaeologist to conduct a pre-construction pedestrian survey over any segments of the route that have not already been surveyed. If unanticipated surface evidence</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		of an archaeological site is observed, impacts on the site would be avoided.	
ENERGY AND MINERALS (Section 4.10)			
ENE-1: Access to Oil and Gas Resources The Project may temporarily limit access to or availability of onshore mineral resources such as sand/gravel and oil/gas production.	Class III	None.	Less than significant
ENE-2: Create Significant Effects on Local or Regional Energy Supplies The Project would have a beneficial impact on local and regional energy supplies.	Class IV	N/A – beneficial impact.	Beneficial Impact.
GEOLOGY (Section 4.11)			
GEO-1: Worsens Existing Unfavorable Geologic Conditions and/or Releases Toxic or Other Damaging Material into the Environment Construction activities could temporarily worsen existing unfavorable geologic conditions.	Class II	AM GEO-1a. Drilling Location. The Applicant or its representative would locate the onshore entry and offshore exit points for HDB the drilling at the shore crossing outside of the area affected by normal storms. In addition, the pipeline would be buried deep enough to prevent surfacing due to storm erosion. AM TerrBio-1a. Erosion Control. MM GEO-1b. Backfilling, Compaction, and Grading. Following construction of the onshore pipelines, the Applicant or its designated representative shall properly backfill and compact the right-of-way as defined by standard construction practices, and grade the trench to pre-existing contours and revegetate/restore the landscape to preexisting conditions and to prevent preferential flow paths, erosion, or subsidence. MM WAT 3a. Drilling Fluid Release Monitoring Plan.	Less than significant
GEO-2: Cause a Loss of a Unique Paleontological Resource Construction activities could disturb or destroy paleontological resources; such impacts are typically permanent.	Class II	MM GEO-2a. Inspection. The Applicant or its designated representative shall have a qualified paleontologist complete a paleontological inspection prior to excavating in the suspect areas.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
GEO-3: <i>Expose People or Structures to Adverse Effects Due to Direct Rupture along Fault Lines, Ground Shaking, or Seismic-related Ground Failure</i> Damage to pipelines or other facilities could occur due to direct rupture (ground offset) along fault lines.	Class II	AM GEO-3a. Avoidance. The Applicant would avoid crossing known active fault zones, where possible. AM GEO-3b. Pipeline Flexibility. Except for the shore crossing, where the pipelines would be installed beneath Ormond Beach, the Applicant would install the offshore pipelines directly on the seabed surface to allow enhanced flexibility (compared with a buried pipeline) and to help them withstand movement caused by fault rupture. Under normal conditions (not due to mass movement) some sediment may cover the pipelines; however, minor sediment should not affect the flexibility of the pipelines. Pipeline routes would also be designed to cross potential faults at as much as a right angle as possible. Offset of pipelines crossing strike-slip or normal faults at right angles induces tension in the pipe, rather than compression. Pipelines can withstand significant offset when in tension.. MM GEO-3c. Geotechnical Studies. The Applicant shall complete final site-specific seismic hazard studies, to be approved by the CSLC and USCG, prior to construction. MM GEO-3d. Design and Operational Procedures. The Applicant shall evaluate larger trench, engineered backfill, thicker wall pipe, shutoff valves placed on either side of fault crossings, and telemetric control for final pipeline design.	Less than significant
GEO-4: <i>Cause Severe Damage to Project Components as a Direct Consequence of a Geologic Event, Releasing Toxic or Other Damaging Materials into the Environment</i> Ground shaking from earthquakes, which is of a transitory and sporadic nature, could damage Project components.	Class II	MM GEO-4a. Design for Ground Shaking. The Applicant shall employ proper seismic design that would allow pipelines and other structures to withstand intense ground shaking without collapsing or rupturing.	Less than significant
GEO-5: <i>Damage a Pipeline due to Landslides, Mudflow, Lateral Spreading, Subsidence, Liquefaction, or Collapse as a Result of Locating the Project on a Geologic Unit or Soil</i>	Class III	AM GEO-5a. Avoid Areas of Mass Movement. To the extent possible, the Applicant would avoid areas of soil susceptible to mass movement and areas of steeper slopes.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
<i>that is Unstable</i> Mass movement, which is of a transitory and sporadic nature, could damage pipelines or structures.		MM GEO-3c. Geotechnical Studies.	
GEO-6: <i>Damage to Pipelines from Tsunamis</i> Tsunamis, which are transitory and sporadic in nature, could damage near-shore pipelines or facilities due to the typical force and erosive nature of these storms.	Class III	AM GEO-6a. Pipeline Burial. The pipeline at the shore crossing would be buried at least 35 feet below the surface of the beach and deeply enough below sea level to minimize the potential of frac outs. This will also avoid potential damage from tsunamis.	Less than significant
HAZARDOUS MATERIALS (Section 4.12)			
HAZ-1: <i>Release of Oil or Hazardous Materials and Contamination of Marine Environment due to Offshore Operations</i> Improper handling of hazardous materials or leaks in containers on the FSRU could result in a release to the marine environment or exposure of workers or the public.	Class III	None.	Less than significant
HAZ-2: <i>Release of Oil or Hazardous Materials Spills Could Result in Soil Contamination due to Pipeline Construction Activities</i> Activities associated with site preparation, construction, and drilling, as well as operations and maintenance activities, could result in an accidental spill of hazardous materials or oil and exposure of workers or the public.	Class II	AM HAZ-2a. Use Best Management Practices. The Applicant, or its designated representative, would store hazardous materials in temporary staging areas on pallets within fenced and secured areas and protected from exposure to weather. MM HAZ-2b. Maintain Equipment. The Applicant, or its designated representative, shall maintain equipment in good operating condition to reduce the likelihood of fuel or oil line breaks and leakage. Any vehicles with chronic or continuous leaks shall be removed from the construction site and repaired before being returned to operation. MM HAZ-2c. Hazardous Material Contingency Plan. The Applicant, or its designated representative, shall prepare a detailed hazardous material contingency plan that defines how the contaminated soil and/or groundwater is to be handled and disposed and training for personnel.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		MM WAT-3a. Drilling Fluid Release Monitoring Plan.	
HAZ-3: <i>Release of Existing Contaminants from Sediments, Soils, or Groundwater</i> Construction activities could unearth existing contaminated sites onshore and offshore, causing potential health hazards to construction workers, the public, and marine and terrestrial ecology.	Class II	<p>AM HAZ-3a. Prevent Migration of Contaminated Soils. If buried hazardous materials or contamination are discovered, the Applicant, or its designated representative, would implement best management practices, specifically BMP 2-06 "Contaminated Soil Management," to prevent migration of contaminated soils or other materials off site. This may include covering an area of contaminated soil with tarps to prevent contaminated dust from blowing off site during windy conditions or providing containment to collect and store stormwater that may have become contaminated.</p> <p>MM HAZ-3b. Consult with DTSC Regarding Cleanup of Soil and Groundwater at Whittaker-Bermite Site (MP 0.2 to 1.25). Soil contamination in Operable Unit 2 immediately adjacent to or within the proposed pipeline route is expected to be cleaned up by 2006 and certified as such by the California Department of Toxic Substances Control (DTSC). The Applicant or its designated representative shall coordinate with the DTSC to identify potential soil and/or groundwater contamination hazards present in the proposed pipeline alignment and to determine whether additional surveys or screening-level sampling are warranted in areas to be disturbed by pipeline construction prior to any construction. To confirm that the appropriate level of coordination occurs with the DTSC, the Applicant, or its designated representative, shall submit a letter detailing the results of consultation with the DTSC and any specific measures that are to be implemented during construction to the USCG and the CSLC, with a copy to the DTSC, 60 days prior to initiating construction. The CSLC would assist the Applicant, or its designated representative, with DTSC consultation, if requested by the Applicant, or its designated representative.</p> <p>MM HAZ-3c. Onshore Surveys. In areas where the proposed pipeline alignments diverge from existing ROWs, the Applicant, or its designated representative, shall conduct additional surveys to identify potential areas of soil and/or groundwater contamination. If</p>	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		contaminated sites are identified, the Applicant, or its designated representative, shall implement its Hazardous Material Contingency Plan and implement best management practices.	
HAZ-4: Potential Disturbance or Detonation of Unexploded Ordnance due to Onshore or Offshore Construction Offshore pipeline installation and onshore pipeline construction activities could encounter UXO, causing an explosion that could result in serious injuries or fatalities to workers or the public, and—for offshore locations—serious injuries or fatalities to marine life from subsurface blast pressures.	Class II	MM HAZ-4a. Offshore Surveys. The Applicant shall conduct additional surveys at the offshore pipeline installation within and near the Point Mugu Sea Range to locate visible and shallowly buried UXO that might be disturbed by pipeline installation. MM HAZ-4b. Coordination with the California Department of Toxic Substances Control. The Applicant, or its designated representative, shall coordinate with the DTSC before any surveys or construction activities at parts of the Line 225 Pipeline Loop route on or near the Whittaker-Bermite site to determine whether additional UXO surveys would be warranted and shall ensure that those surveys are conducted if deemed necessary. The Applicant, or its designated representative, shall submit a letter to the CSLC and the USCG with a copy to the DTSC documenting the outcome of coordination and the status of follow-up 60 days prior to beginning construction.	Less than significant
LAND USE (Section 4.13)			
LU-1: Changes in Existing Land Use Implementation of the Project would change an existing land use.	Class III	AM AGR-1a. Compensation for Temporary and Permanent Loss of Agricultural Land, Crop Loss, Future Loss of Production, and Other Negative Impacts.	Less than significant
LU-2: Disruption to Adjacent Properties Construction may cause temporary disturbances or nuisances to nearby residents and businesses or to special land uses.	Class II	AM LU-2a. Minimize Disruption for Residences, Businesses, and Special Land Uses in or near the Construction Area. The Applicant or its designated representative would minimize disruption in residential and business areas during construction. AM LU-2b. Reduce Disruption for Residences Within 25 Feet (7.6 m) of the Construction Work Area. The Applicant would further reduce disruption in residential areas during construction. AM AIR-2a. Fugitive Dust Controls. MM LU-2c. Coordinate with Other Utilities. Before construction, coordinate with other utility service providers to ensure conflicts with	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		other maintenance or construction activities are minimized during construction. MM NOI-6c. Post Signs. MM NOI-6d. Equipment Location. MM TRANS-2a. Traffic Control Plans.	
NOISE (Section 4.14)			
Offshore			
NOI-1: <i>Noise Generated During the Installation of the Floating Storage and Regasification Unit (FSRU) and Offshore Pipelines</i> Noise generated by vessels or equipment during installation of the mooring system, FSRU, and offshore pipelines could result in temporary increases in noise levels in the area, which could impact sensitive noise receptors such as recreational boaters or fishers.	Class II	AM MT-1a. Safety Vessel Warnings. MM NOI-1a. Efficient Equipment Usage. The Applicant shall: <ul style="list-style-type: none"> Operate construction equipment only on an as-needed basis during this period, and to maintain it to the manufacturer's specifications. This will serve to reduce the number of noise producing events. Ensure that equipment engine covers are in place and mufflers are in good working condition for the installation of the mooring system, FSRU, and offshore pipeline. Require that prospective contractors for the offshore pipeline installation address noise reduction measures in their respective bid proposals, such as (1) the extent to which they will use engines with lower noise ratings, (2) phased construction activities to reduce simultaneous operations of engines, and (3) all other practices they would follow to reduce equipment noise emissions. MM MT-1c. Notices to Mariners.	Less than significant
NOI-2: <i>Long-Term Noise Generated During FSRU Operations</i> Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term.	Class I	None.	Significant

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NOI-3: <i>Temporary Noise Generated by Support Vessels During Offshore Operations</i> LNG carriers, crew boats and supply vessels, or helicopters could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers.	Class I	AM NOI-3a. Daytime Operations. The Applicant would operate crew boats, supply vessels, and helicopters during daytime hours, except during emergencies. The operation of these vessels would be less disturbing to during daytime hours when there is more background noise and people are generally involved activities which do not require lower noise levels. AM AIR-5b. Reduced Vessel Traffic Between the FSRU and Port Hueneme.	Significant
Onshore			
NOI-4: <i>Temporary Noise Generated During Construction using Horizontal Directional Boring (HDB), Horizontal Directional Drilling (HDD), or Other Drilling Techniques</i> HDB at the shore crossing and HDD or other drilling techniques at onshore waterways and intersection crossings could temporarily increase noise levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions.	Class I	AM NOI-4a. Construction Noise Reduction Measures. Monitoring; enclose power unit; noise barriers. Enclose mud pumps and engines; enclose generator sets; partially enclose mud mixing; provide engine compartment treatments; modify backup alarms; orient loading bins; restrict use of mobile equipment; enclose light set engines; temporary hay bales as noise barriers; place silencers on all engines. MM NOI-4b. Use Noise Blankets. During Project construction noise blankets shall be used to fully enclose equipment associated with tunneling, if residences are located within 2,000 feet (610 m) and work occurs after 6 p.m. MM NOI-4c. Limit Heavy Equipment Activity near Residences. Heavy equipment activity adjacent to residences shall be limited to the shortest possible period required to complete pipeline installation. MM NOI-4d. Cover the Equipment Engine. The equipment engine shall be covered and the Applicant shall ensure that mufflers are in good working condition. MM NOI-4e. Establish Telephone Hotline. A phone number should be established and publicized for members of the public to call should they have a noise or vibration complaint.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		MM NOI-4f. Establish Procedures. Establish procedures to stop or curtail work or add additional measures to respond to any noise or vibration complaints or exceedences of any ordinances.	
NOI-5: <i>Temporary Vibration Generated During Horizontal Directional Boring (HDB), Horizontal Directional Drilling (HDD), and Pipeline Construction Activities</i> HDB, HDD, boring, trenching, and other construction activities could temporarily create vibration levels at sensitive receptors.	Class I	AM NOI-4a. Construction Noise Reduction Measures. MM NOI 4c. Limit Heavy Equipment Activity Near Residences. MM NOI-5a. Restricted Work Hours. The Applicant or its designated representative shall ensure that work hours are restricted for pipeline construction activities, with the exception of HDB, involving motorized equipment from 7 a.m. to 7 p.m. Monday through Saturday.	Significant
NOI-6: <i>Noise Generated During Construction of the Onshore Pipeline</i> Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors, such as schools and residences. Noise levels may exceed county and/or city noise ordinances or permit conditions during the installation of the onshore pipeline and associated structures.	Class I	AM NOI-4a. Construction Noise Reduction Measures. MM NOI-6a. Post Signs. The Applicant or its designated representative shall post signs along the construction right-of-way with approximate schedule and contact information. MM NOI-6b. Equipment Location. The Applicant or its designated representative shall locate stationary equipment, such as compressors and welding machines, away from the noise receptors to the extent practicable. MM NOI 4c. Limit Heavy Equipment Activity Near Residences. MM NOI-4d. Cover the Equipment Engine. MM NOI-4e. Establish Telephone Hotline. MM NOI-4f. Establish Procedures. MM NOI-5a. Restricted Work Hours.	Significant
NOI-7: <i>Noise Generated by Traveling to the Construction Site</i> Additional vehicular traffic carrying workers, equipment, and materials to the construction sites could temporarily increase noise levels for residences, schools, places of worship, or hospitals.	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
NOI-8: Noise Generated During Onshore and Associated Facilities Operations Operations of the aboveground facilities may exceed county and/or city noise ordinances or permit conditions for the long-term.	Class II	AM NOI-4a. Construction Noise Reduction Measures. MM NOI-4c. Limit Heavy Equipment Near Residences. MM NOI-4d. Cover the Equipment Engine. MM NOI-5a. Restricted Work Hours. MM NOI-4f. Establish Procedures. MM NOI-6a. Post Signs. MM NOI-6b. Equipment Location.	Less than significant
RECREATION (Section 4.15)			
Offshore			
REC-1: Temporary Restrictions on Offshore Recreational Boating and Fishing during Construction and Temporary Reductions of Fish Catch Construction activities would temporarily restrict recreational boating and recreational marine fishing.	Class III	None.	Less than significant
REC-2: Restricted Recreational Fishing Due to Area to be Avoided Operational activities could restrict offshore recreational activities because of the creation of a 2 NM (2.3 miles or 3.7 km) Area to be Avoided around the FSRU, and a safety zone around the LNG vessels.	Class III	None.	Less than significant
REC-3: Reduce the Quality of the Offshore Recreational Experience During Project operations, the presence of the FSRU would alter the recreational experience of recreational boaters, including visitors on whale-watching trips and other visitors to the CINP.	Class I	None.	Significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
Onshore			
REC-4: <i>Reduce the Recreational Experiences at or Restrict Access to Ormond Beach</i> Construction or maintenance activities at the shore crossing could temporarily impede recreational uses or degrade recreational experiences at Ormond Beach because of the noise, dust, and light generated during construction and repairs or due to accidental release of drilling fluids or a gas leak.	Class III	None.	Less than significant
REC-5: <i>Reduce or Restrict Access to Parks or Reduce User Enjoyment</i> Construction activities could temporarily restrict access to parks due to increased traffic congestion or other nuisances in the general area of parks in the vicinity of pipeline construction.	Class III	AM REC-5a. Contractor Yard Locations. Contractor yards would be located at least 1 mile (1.6 km) away from park and recreation areas. MM Trans-2a. Traffic Control Plans.	Less than significant
REC-6: <i>Reduce or Restrict Access to Trails</i> Construction activities for the Line 225 Pipeline Loop would temporarily close the multi-use trails along the South Fork Santa Clara River.	Class II	MM REC-6a. Trail Closure Signage and Information. The Applicant or its designated representative shall post signs and disseminate information to the public about the multi-use trail along the South Fork Santa Clara River stating how long the trail will be closed, when it will be restored, and alternate routes. MM REC-6b. Trail Restoration. The Applicant or its designated representative shall restore the multi-use trail along the South Fork Santa Clara River to its previous condition before construction within 21 days after completion of the section of the pipeline along the trail.	Less than significant
SOCIOECONOMICS (Section 4.16)			
SOCIO-1: <i>Decrease in Catch Revenues for Commercial Fisheries due to Exclusion from Fishing Areas</i> The long-term and temporary exclusion of	Class II	AM SOCIO-1a. Compensation for Lost Gear. As a member of the Oil Caucus of the Joint Oil/Fisheries Committee of South Central California, the Applicant would negotiate mitigation for impacts on fishers using guidance from existing Joint Oil/Fisheries Committee	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
commercial fishers from fishing grounds could decrease catch revenues for commercial fisheries.		guidelines for lost or damaged gear according to the existing guidelines. AM MT-1a. Safety Vessel Warnings. AM MT-1b. Automatic Identification System. AM MT-2b. Established Routes to and from Port Hueneme. AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors. MM SOCIO-1b. Arbitration. If there is a complaint by a fisher related to impacts from the Project, a mutually agreed-upon settlement shall be reached between the Applicant and injured party. An arbitrator shall become involved if the voluntary negotiation is not concluded within three months and will be compensated by the Applicant.	
SOCIO-2: Decreased Commercial Fisheries Revenues due to Loss of Fishing Gear The loss of commercial fishing gear from pipelines and supply boat traffic could decrease commercial fisheries revenues.	Class II	AM SOCIO-1a. Compensation for Lost Gear. AM MT-2b. Established Routes to and from Port Hueneme. AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors. MM SOCIO-1b. Arbitration. MM MT-1c. Notices to Mariners. MM MT-1d. Securite Broadcasts. MM MT-1e. Safety Vessel.	Less than significant
SOCIO-3: Increase in Regional Fishing Pressure The permanent exclusion of commercial fishing from fishing grounds could increase fishing pressure in other areas or reduce the catch, resulting in negative economic impacts.	Class III	None.	Less than significant
SOCIO-4: Small Increased Demand for Public Services The Project would cause a slight increased demand for public services during construction and operations.	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
TRANSPORTATION (Section 4.17)			
TRANS-1: Temporary Increase in Traffic at LOS E Intersection Construction of the Center Road Pipeline or alternate routes could temporarily affect an intersection that is already at LOS E.	Class I	MM TRANS-1a. Avoid Peak Traffic Periods. The Applicant or its designated representative shall avoid pipeline construction and construction related trips on SR 118 (Los Angeles Avenue) during peak hours, i.e., between 6:30 a.m. to 9:00 a.m. and between 3:30 p.m. to 6:30 p.m., Monday through Friday.	Significant
TRANS-2: Temporary Increase in Traffic During construction, the addition of the construction-related workforce and material deliveries to and from staging areas could temporarily increase traffic during peak construction periods.	Class II	MM TRANS-2a. Traffic Control Plans. Two traffic control plans shall be prepared by a registered professional engineer in accordance with the Work Area Protection and Traffic Control Manual (1999): one for the Center Road Pipeline and one for Line 225 Pipeline Loop. (See full text of mitigation measure for required elements of traffic control plans and approval requirements.) MM TRANS-2b. Notification, Schedule Shifts, Carpooling. During construction, the Applicant or its designated representative shall enact best management practices approved by CalTrans and/or the affected local government, such as notification, schedule shifts, and carpooling, to minimize increases in traffic.	Less than significant
TRANS-3: Temporary Traffic Lane Closures The Project could restrict one or more lanes of major roads, disrupting local traffic flow during peak hours.	Class II	MM TRANS-1a. Traffic Control Plans.	Less than significant
TRANS-4: Temporarily Reduced On-Street Parking Access Construction could temporarily restrict residential on-street parking access.	Class III	None.	Less than significant
TRANS-5: Temporary Closure of Bike Routes Construction could result in temporary closure and/or restricted access to bike paths crossed by the onshore pipelines, which could adversely affect the safety of bicyclists.	Class II	MM TRANS-5a. Bike Detour Lanes. Where bike paths are closed, the Applicant or its designated representative shall provide an alternative bike route, provide signs and notice of the pending closure at least 30 days prior to commencement of work at the affected location, and ensure that the route remains posted until the access is restored to its pre-construction condition.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		MM TRANS-5b. Repair Damage to Bike Paths. The Applicant or its designated representative shall restore any bike paths damaged as a result of Project construction to their pre-construction condition within 21 days of completion of the bike route-based portion of each alignment. MM TRANS-2a. Traffic Control Plans.	
TRANS-6: Damage to Roads During Construction Roads crossed or paralleled by the onshore pipelines, as well as those used to access the Project, could be temporarily damaged by increased traffic and heavy equipment.	Class II	MM TRANS-6a. Repair Damage to Roads. The Applicant or its designated representative shall repair to pre-construction conditions any damage to roads that occurs as a result of the Project within 21 days of completion of the road-based portion of each alignment or in accordance with local road encroachment permit conditions determined prior to construction, whichever is less. In addition, where a roadway has been rehabilitated within the past five years, the Applicant or its designated representative shall provide a full width overlay after trenching is completed. The Applicant or its designated representative shall negotiate with the appropriate jurisdiction regarding videotaping of existing roadways prior to construction and mitigation fees to be deposited into a trust fund.	Less than significant
WATER (Section 4.18)			
Offshore – Construction/Installation			
WAT-1: Temporary Degradation of Offshore Water Quality due to Accidental Discharges Accidental discharges of petroleum, sewage, or other contaminants from vessels during offshore construction and installation activities could temporarily degrade offshore water quality.	Class III	None.	Less than significant
WAT-2: Short-Term Increase in Turbidity or Accidental Unearthing of Contaminants during Offshore Construction The installation of the FSRU and subsea	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
pipelines could disturb seafloor sediments or release drill cuttings or fluids, causing a short-term increase in turbidity or accidental unearthing of contaminants.			
Onshore Construction			
WAT-3: Short-Term Degradation of Surface Water or Groundwater Quality due to Accidental Release of Drilling Fluids Accidental releases of drilling fluids at the shore during construction could degrade surface water or groundwater quality for the short term.	Class II	MM WAT-3a. Drilling Fluid Release Monitoring Plan. The Applicant shall implement its Drilling Fluid Release Monitoring Plan to minimize the potential for releases of drilling fluids, to properly clean up drilling fluids in the event of a release, and notify appropriate agencies should a release occur. The Plan (see Appendix D1) would incorporate best management practices to reduce the impacts from releases of drilling fluids, including the following: <ul style="list-style-type: none"> • Maintaining containment equipment for drilling fluids on site; • Adding a non-toxic color dye to the drilling fluids to easily and quickly detect release of drilling fluids; • Ensuring that a qualified environmental monitor or suitably trained water quality specialist is onsite full time near sensitive habitat areas during HDB activities; • Stopping work immediately if there is any detection of bentonite seeps into surface water or sensitive habitats, for example, by a loss in pressure or visual observation of changes in turbidity or surface sheen; • Reporting all bentonite seeps into waters of the State or sensitive habitat immediately to the Project's resource coordinator, the CSLC, the Los Angeles RWQCB, and the appropriate resource agencies: National Oceanic and Atmospheric Administration Fisheries, U.S. Fish and Wildlife Service, the U.S Army Corps of Engineers, the California Department of Water Resources, the California Reclamation Board, the applicable city (Oxnard or Santa Clarita) and county (Ventura or Los Angeles); and 	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
		<ul style="list-style-type: none"> Cleaning up and properly disposing of any release of drilling fluids to the satisfaction of regulatory agencies. 	
WAT-4: <i>Short-Term Increase in Erosion due to Construction Activities</i> HDD and trenching at stream crossings, including release of hydrostatic test water, could cause short-term increases in erosion.	Class II	AM TerrBio-1a. Erosion Control. MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit. The Applicant or its designated representative shall ensure that a pit has been excavated at the HDD exit hole to collect and contain the drilling fluids and cuttings. MM WAT-4b. Energy Dissipater for Hydrostatic Test Water Discharge. For the hydrostatic test water discharge, the Applicant or its designated representative shall design and install a suitable energy dissipater at the outlets and design and install suitable channel protection structures. MM WAT-4c. Transport Sediment Spoils Off-Site. Sediment spoils that are not utilized to backfill trenches in stream channels shall be transported and disposed of offsite at an approved facility. MM WAT-4d. Monitor Stream Crossing Construction. A qualified environmental monitor or suitably trained water quality specialist shall be present at each stream crossing construction site to ensure compliance with applicable permits and mitigation. MM GEO-1b. Backfilling, Compaction, and Grading.	Less than significant
WAT-5a: <i>Degradation of Water Quality due to Accidental Release of Untreated Gray Water, Deck Drainage, and other Discharges that do not Meet Water Quality Standards</i> The FSRU could accidentally release small amounts of contaminants, including petroleum, diesel fuel, detergents, or human waste, to marine waters in excess of water quality standards.	Class III	None.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
WAT-5b: <i>Degradation of Water Quality due to an Accidental Release of Diesel Fuel from the FSRU, Pipelaying Vessel, or Service Vessels.</i> An accidental release of diesel fuel to marine waters would violate Federal and State water quality standards or objectives.	Class I	None.	Significant
WAT-6: <i>Temporary Degradation of Surface Water Quality During Maintenance Activities</i> Releases of petroleum or other contaminants during maintenance activities could temporarily degrade surface water quality.	Class III	AM WAT-6a. Best Management Practices at Creek Crossings. Best management practices such as using silt fencing and straw bales would be employed at all creek crossings for major maintenance activities that could result in spills that could enter surface water pathways. AM WAT-6b. Spill Response Plan. The Applicant or its designated representative would prepare a spill response plan to protect surface water at and near the surface water crossings. This plan would be incorporated into the SWPPP as a requirement of the construction storm water NPDES permit and the Spill Prevention, Control, and Countermeasures Plan. The plan would identify specific measures to prevent, contain, and clean up any spills that could enter surface water pathways.	Less than significant
WAT-7: <i>Degradation of Surface Water Quality due to Erosion Caused by Regular Maintenance Activities</i> Regular maintenance of the pipelines could cause erosion and sedimentation of creeks from the use of maintenance vehicles or equipment, leading to short-term violations of water quality standards.	Class III	AM WAT-6a. Best Management Practices at Creek Crossings.	Less than significant

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Impact	Impact Class	Applicant Proposed Mitigation Measures (AM) Agency Recommended Mitigation Measures (MM)	Result
ENVIRONMENTAL JUSTICE (Section 4.19)			
EJ-1: <i>Disproportionate Impact on Minority and Low-Income Community of a Pipeline Accident near Center Road Pipeline MP 4.1</i> There would be a long-term risk of a pipeline rupture that could cause a fire that would disproportionately adversely affect a minority or low-income community.	N/A	AM PS-4a. Class 3 Pipeline Design Criteria. MM PS-4b. Pipeline Integrity Management Program. MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve Controls or Automatic Line Break Controls. MM PS-5a. Treat Manufactured Home Residential Community as an HCA.	Less than significant

Key to impacts (EIS/EIR section #):

PS = Public Safety (4.2)	TerrBio = Biological Resources—Terrestrial (4.8)	NOI = Noise (4.14)
MT = Marine Traffic (4.3)	CUL = Cultural Resources (4.9)	REC = Recreation (4.15)
AES = Aesthetics (4.4)	ENE = Energy and Minerals (4.10)	SOCIO = Socioeconomics (4.16)
AGR = Agriculture and Soils (4.5)	GEO = Geologic Resources (4.11)	TRANS = Transportation (4.17)
AIR = Air Quality (4.6)	HAZ = Hazardous Materials (4.12)	WAT = Water Quality and Sediments (4.18)
BioMar = Biological Resources—Marine (4.7)	LU = Land Use (4.13)	EJ = Environmental Justice (4.19)

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